THE FAUNA OF BRITISH INDIA,

INCLUDING

CEYLON AND BURMA.

Published under the authority of the Secretary of State for India in Council.

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COLEOPTERA.

CHRYSOMELIDÆ

(CHRYSOMELINÆ AND HALTICINÆ.)

BY

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LONDON:
AYLOR AND FRANCIS, RED LION COURT, FLEET STREET.

CALCUTTA: THACKER, SPINK, & CO. | BOMBAY: THACKER & CO., LIMITED.

April, 1926.

ALERE FLAMMAM.

PRINTED BY TAYLOR AND FRANCIS,

RED LION COURT, FLEET STREET

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AUTHOR'S PREFACE.

THE present volume forms a continuation of my study of the CHRYSOMELIDÆ of India, Burma and Ceylon, and is my second contribution to the "Fauna of British India" series*. As before, the work has been done in the British Museum (Natural History), where I have had the opportunity of studing Baly's and Jacoby's types as well as much undetermined material; and I wish to thank the authorities of that institution for allowing me continual access to the reserve collections. Besides the British Museum collections I have examined other material of the groups treated in this book, from various sources: from the Indian Museum, Calcutta, I have received more than one consignment; the collections of the Pusa Agricultural Research Institute were sent by Mr. T. Bainbrigge Fletcher, through Dr. Hugh Scott; Dr. C. F. C. Beeson, of the Dehra Dun Forest Research Institute, has on several occasions sent to me small series of specimens; Mr. G. C. Champion has handed over to me from time to time the interesting captures made by his son, Mr. H. G. Champion, in the Himalayan forest districts; Mr. G. M. Henry, of the Colombo Museum, sent me a small collection; while I have also seen the Indian CHRYSOMELIDÆ belonging to the late Mons. Julien Achard of Prague, whose recent death must occasion many regrets. By correspondence I have obtained assistance from Dr. Walter Horn of Berlin,

* My first was the volume on HISPINÆ and CASSIDINÆ published in July, 1919.

Dr. Franz Heikertinger and Dr. K. Holdhaus of Vienna, Dr. Kai L. Henriksen of Copenhagen, Mons. P. Lesne of Paris, Mons. Severin of Brussels, and Professor G. Jacobson of Leningrad (through the good offices of Dr. B. Uvarov). It is a pleasure to express my warm thanks to all persons concerned.

As to the determination of specimens, in most cases I have seen the types, while in those cases where I have not had the opportunity of seeing the types the fact is stated at the end of the description of the species. In this connexion I wish to record my thanks to Dr. R. Gestro, of the Genoa Museum, who, with his usual courtesy, loaned me several types from the Fea Collection. I have also seen types or co-types belonging to Mr. H. E. Andrewes, which are now incorporated with the main collection of the British Museum, and to him also my thanks are due.

As regards Motschulsky's species, a few are incorporated in the body of this work and in the dichotomous keys, for reasons stated under each species. The rest are recorded only by means of translations into English of the original diagnoses. These latter species (together with a few species of doubtful position described by other authors) find no place in the keys nor in the consecutive numbering of species throughout the volume. Formerly it was believed that Motschulsky's types were completely lost, but it is now known that some of them, at least, have been recovered, and these are conserved in the Museum of the University of Moscow*. Owing to the difficulty experienced by entomologists in dealing with these species described by Motschulsky, it is, I think, urgently necessary that a report should be published on the present condition of his collection. This object could easily be achieved if the authorities of Moscow University could see their way to lend the collection to the British Museum, where

* By a misapprehension Mr. G. J. Arrow stated in the preface of his volume on EROTYLIDÆ, etc., published in this series in March, 1925, that Motschulsky's types are in Petrograd (Leningrad).

the specimens could be cleaned and properly remounted, and a report could be drawn up by specialists working on the various groups, after which the whole collection could be returned to Moscow. I have made this suggestion in order to draw the attention of Russian entomologists to the question of placing Motschulsky's species on a sure basis once for all.

In drawing up the accounts of the economic relationships of the two subfamilies treated in this book and of the life-histories of the pests which they include, I have consulted the 'Review of Applied Entomology,' and I wish to record my appreciation of the kindness of Dr. G. A. K. Marshall, C.M.G., F.R.S., in giving me permission to make extracts from that journal, and also of that of Dr. S. A. Neave in allowing me to use the library of the Imperial Bureau of Entomology.

Circumstances have rendered it necessary to employ a number of artists, to each of whom my thanks are due. The task of illustrating the volume was begun by Mr. A. J. Engel Terzi, but he was unable to continue, and it is to be regretted that all the drawings did not emanate from the master's brush. Gratitude is, however, especially due to Miss Violet W. Borrow, who has admirably executed the greater part of the work. Actually the original drawings were distributed among the various artists as follows: by Mr. Terzi, figs. 1–7, 14, 16–19, 23–28, 35; by Miss Borrow, figs. 8, 15, 34, 40–46, 48–58, 60–80, 82, 85–87, 89–91, 94–99, 103–130, 132–138; by Miss Vere L. Temple, figs. 84, 92, 93, 102, 131, 139; by Mr. P. Highley, figs. 36–39; by Mr. R. N. Field, figs. 81, 83, 88, 100, 101; by Mr. Atul Bose, figs. 9–13, 20–22, 29–33, 47, 59.

I am deeply indebted to the editors, particularly to Dr. Hugh Scott, whose criticisms and suggestions have been very helpful and whose editorial punctiliousness and scientific precision have saved me from errors and discrepancies.

I wish to thank Messrs. J. H. Durrant, W. H. T. Tams, N. D. Riley, K. G. Blair, and G. J. Arrow, all of the

British Museum, and Mr. G. E. Bryant, of the Imperial Bureau of Entomology, for courtesy shown me while I was working in the Museum.

In this book, as elsewhere, I have introduced many new names which are derived from Sanskrit roots. This procedure has enabled me to save time which must otherwise be spent in bibliographical research in order to find out whether a name is already preoccupied or not. The sole responsibility for the derivations and meanings (given in the footnotes) of such new names rests with me. In my previous volume the derivations of new names were not given, but in the present case I have thought it best to do so, though the practice has been applied only to those of Sanskrit origin, and has not been extended to names of new species which are derived from Greek or Latin sources and which are familiar by long use in zoological nomenclature.

London,
February, 1926.

S. MAULIK.

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5. Line 3 of footnote: for "*Chrysomela*" read "*Chrysolina*."
13. Line 18 from bottom: the heading should read '*On the formation of Keys or Tables.*'
42. Line 10 from bottom: *for* "Carin Hills" *read* "Karen Hills" *.
59. Line 10: *for* "third bilobed segment" *read* "bilobed third segment."
60. Line 16 from bottom: *for* "λ-shaped" *read* "Y-shaped."
63. Line 14: "Karen Hills, Cheba" *should read* "Karen Chebà" *.
63. Line 16 from bottom: *for* "a λ" *read* "a Y."
64. Line 18: *for* "λ-mark" *read* "Y-mark."
65. Line 6: *for* "λ-shaped" *read* "Y-shaped."
66. Line 20: *for* "λ-mark" *read* "Y-mark."
73. Line 2: *for* "Gebler" *read* "*Gebler.*"
75. Fig. 25 is upside down.
94. Line 28: for "(*Frühstorffer*)" read "(*Frühstorfer*)."
99. Legend of Fig. 35: for "*Orthaea*" read "*Neorthaea.*"
113. Line 21: for "*Argopistis*" read "*Argopistes.*"
152. Line 3 from bottom: for "*O. mouhoti*" read "*Ph. mouhoti.*"
168. Lines 12 and 17: for "*tenuilimbata*" read "*tenuilimbatus.*"
179. Line 8 from bottom: for "*Orthaea*, Jac." read "*Neorthaea.*"
186. Line 24: "Karen Hills, Cheba" *should read* "Karen Chebà" *.
189. Line 23:
190. Line 7 from bottom: } for "*metallica*" read "*metallicum.*"
348. Line 13 from bottom: *for* "Shervaroy" *read* "Shevaroy."
394. Line 15: *for* "Genoa Museum" *read* "British Museum."
409. Line 2 from bottom: *for* "joints" *read* "segments."
426. Line 11: *for* "4 mm," *read* "4 mm."

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* NOTE.—"Carin" was the spelling employed by Leonardo Fea for "Karen." Just as the last sheets of this volume are being printed off, the editors have received, through the courtesy of Dr. R. Gestro of the Genoa Museum, a copy of a biographical article by him on the collector Fea, extracted from Ann. Mus. Civ. Genova, xli, 1904, pp. 95–152. In this article, pp. 98–100, is a quotation from Fea's own previously published (1895) book on his travels in Burma, in which it is explained that Carin Chebà, Carin Asciuii-Ghecù, Carin Ghecù, and Carin Asciuii-Chebà—names which frequently occur in many works after descriptions of species collected by Fea—are "tribes or varieties" of Karens. The elevations of villages in these districts are given by Fea, and the names of the tribes are shown on a map of the Karenni country at the end of Dr. Gestro's article.

Order COLEOPTERA.

Family CHRYSOMELIDÆ.

THE large family CHRYSOMELIDÆ, comprising about 20,000 species, has been divided into groups and subfamilies as follows:—

EUPODES	1. Sagrinæ.
	2. Donaciinæ.
	3. Orsodacninæ.
	4. Criocerinæ.
CAMPTOSOMES	5. Megascelinæ.
	6. Megalopodinæ.
	7. Clytrinæ.
	8. Cryptocephalinæ.
	9. Chlamydinæ.
CYCLICA	10. Lamprosominæ.
	11. Eumolpinæ.
	12. Chrysomelinæ.
TRICHOSTOMES	13. Galerucinæ.
	14. Halticinæ.
CRYPTOSTOMES	15. Hispinæ.
	16. Cassidinæ.

Out of these sixteen subfamilies, one, namely MEGASCELINÆ, is not known to occur within our faunistic limits.* The first eleven subfamilies have been already dealt with by the late Mr. Martin Jacoby in this series (Coleoptera, 1908), and the last two, HISPINÆ and CASSIDINÆ, by the present writer (Coleoptera, 1919). The subfamilies CHRYSOMELINÆ and HALTICINÆ form the subject of the present volume. From the point of view of relationship it would have been better to treat GALERUCINÆ and HALTICINÆ together, but the former group alone includes such a large number of forms occurring within our faunistic area that an account of them would occupy fully the space generally allotted to a large volume in this series.

* In my preceding volume (1919, p. 2), it was by an oversight erroneously stated that MEGALOPODINÆ also are unrepresented in British India.

Subfamily CHRYSOMELINÆ.

Although this subfamily is a very large one, consisting of about 2,500 forms from all parts of the world, we can list only 63 species from our region. It may be stated generally that these beetles belong to the temperate and subtropical regions, and are most abundantly represented in America.

For the purpose of the present work an insect belonging to this subfamily can be recognized in the following way: (1) the

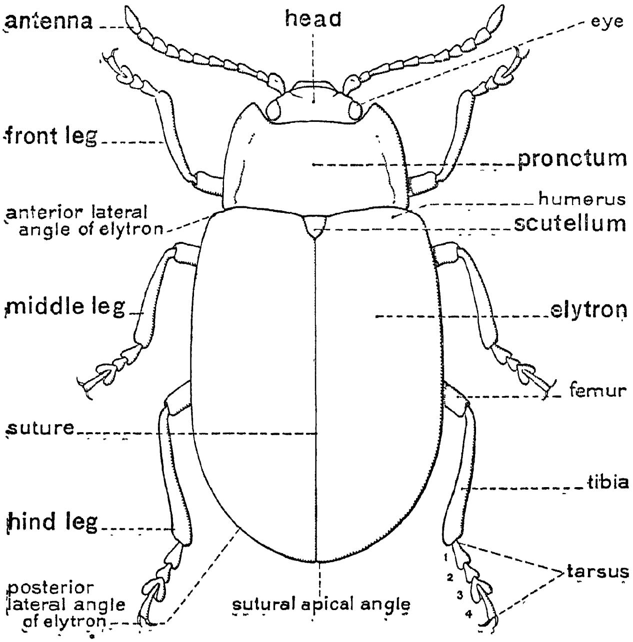

Fig. 1.—Dorsal view of *Chrysolina exanthematica*, Wied.

tarsi are apparently four-segmented, the basal three segments being usually densely set with cushion-like pubescence on the underside, the third segment is expanded laterally into lobes which are not separate, but fused together (except in the genera *Agasta*, *Chrysomela* *, *Phaedon* and *Plagiodera*), and the claw arises from the base of the third segment; (2) the antennæ are separated from each other by the breadth of the front of the head; (3) the anterior coxal cavities are transverse and oval, not round; (4) these beetles are all phytophagous; (5) the larvæ are free-living.

* *I. e.*, *Melasoma*, auctt.; see pp. 17, 67.

External Structure.

In shape and size these insects vary considerably, but the general characters may be stated as follows: the head is rather deeply sunk in the prothorax, the eyes are generally convex and entire, the clypeus is subtruncate, with the anterior margin transversely depressed, and the antennæ are inserted on the forehead behind the base of the mandibles; the prothorax is closely applied to the elytra, and is usually as broad or nearly as broad as the latter are at their base.

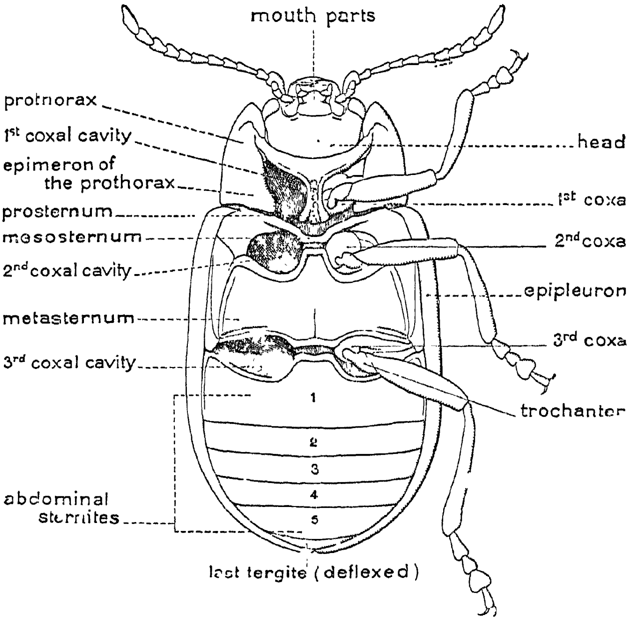

Fig. 2.—Ventral view of *Chrysolina exanthematica*, Wied. The legs are removed on one side. It should be noted that the prothoracic epimeron does not meet the intercoxal process of the prosternum, this condition being denoted by the phrase "anterior coxal cavities open behind."

Head broad, generally of the same width as the emargination of the front margin of the pronotum; clypeus usually delimited above by two inclined impressed lines (sometimes very deeply, sometimes very feebly, impressed) meeting at an angle in the middle; eyes widely separated; antennæ eleven-segmented, not very long, never attaining the length of the body; there is always a difference between the five or six basal segments * and

* Throughout this volume, in descriptions of the appendages, the term "segment" is adopted in place of the term "joint" used in my previous volume.

the remainder, the former being generally smooth, shining and less hairy, while the latter are usually thickened, opaque and more hairy; terminal segment always more or less pointed; the differences in the relative lengths of the basal segments are of some taxonomic value; labrum strongly chitinized, usually broader than long, with its anterior edge generally emarginate and usually set with stiff hairs or bristles; mandibles distinct and prominent; maxillary palpi four-segmented; labial palpi three-segmented. *Thorax*: pronotum more or less quadrate, generally broader than long and bearing setæ at the anterior and posterior angles; scutellum usually triangular; elytra usually bearing longitudinal series of punctures, but often the punctures are quite confused or with only a tendency to seriate arrangement; epipleura (fig. 2) of the elytra (*i. e.* the broadening of the lateral margins seen in ventral view) either of the same breadth from

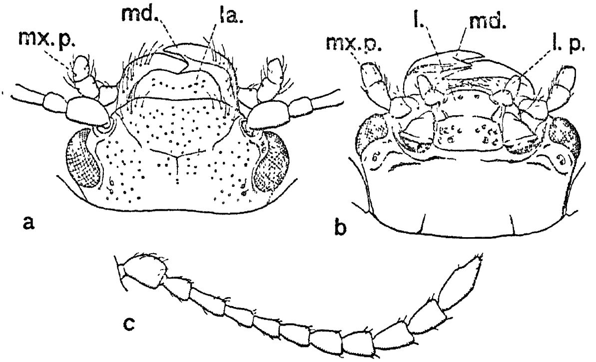

Fig. 3.—*Chrysolina exanthematica*, Wied.:—*a*, dorsal view of head; *b*, ventral view of head; *c*, antenna: *la.*=labrum, *l.*=labium, *l.p.*=labial palp, *md.*=mandible, *mx.p.*=maxillary palp.

base to apex, or more often narrowing towards the apex, with surface usually convex, lying in a horizontal or vertical plane, in some genera furnished along the inner margin with a row of cilia-like bristles (fig. 15 B, p. 46); hind wings membranous, fully developed, or in some cases absent; prosternum and mesosternum presenting differences in the form and structure which have been used for classificatory purposes; metasternum large and more or less convex; anterior coxal cavities either open behind (fig. 2) or closed behind by a lateral outward prolongation of the posterior end of the prosternum, which meets or closely approaches (but does not fuse with) the inward prolongation of the side-piece of the underside of the pronotum (cf. fig. 52); tarsi four-segmented, third segment bilobed or deeply notched*, fourth segment

* In all the genera known from the countries under review, the lobes of the third segment are fused, except in *Plagiodera*, *Phaedon*, *Agasta* and *Chrysomela* [*Melasoma*], where the segment is split longitudinally along the middle.

(bearing the claws) arising from the base of the third. The form of the claws in this subfamily is of taxonomic value; they may be simple or "appendiculate," *i.e.* angularly dilated on the underside at the base, or split or cut in the middle (fig. 30, p. 86). *Abdomen* with five visible ventral segments, which may be punctate or impunctate, glabrous or hairy; male copulatory armature, or *œdeagus*, not (so far as is known) varying greatly within this group.

Larvæ and Notes on the Life-history.

The larvæ of CHRYSOMELINÆ feed on the foliage of plants, on which they live more or less openly. They are of short, oval or nearly oval form, very convex above, with short legs, and in

Fig. 4.—*Chrysolina cxanthematica*, Wied.:—*la*., labrum; *md*., mandible; *mx*., maxilla; *l*., labium.

many species are brightly coloured. There may be one or several generations in the year, the number of generations sometimes varying in a single species in different parts of its range.*

* [A paper by H. W. Dobson, 'Entomologist,' lvii, July 1924, pp. 159–163, indicates that in certain species the life-cycle may occupy two years, at least in some parts of their range. Dobson observed the habits of *Chrysomela fastuosa* in captivity. This species feeds on the Labiate *Galeopsis tetrahit*, and he obtained from it a number of larvæ in N.W. England in August 1921. The majority of these larvæ had become imagines by Oct. 1921, though a few individuals remained in the larval state through the winter. The adults hibernated, emerging from their winter quarters early in 1922, and continuing active through the summer of that year; many pairings were observed between May and late August, but no eggs were laid. In the autumn of 1922 the adults again went into hibernation, and again emerged (except a few which had died) early in 1923, when pairings took place from March till the end of June; eggs were at length laid later in the summer of 1923, and in mid-August a number of larvæ were feeding, just two years from the time when those of the preceding generation were found. From Dobson's observations it would appear that the same cycle was followed in a wild state, though the times of emergence from winter quarters were on the whole somewhat later.—EDS.]

Pupation takes place either in the soil, or on the ground under dead leaves, etc., or in some cases on the plant; and in some species at least the hind end of the pupa is surrounded by the last larval skin. Some species are viviparous, the adults producing living larvæ instead of eggs. The larvæ of some species possess extrusible vesicles or processes which they protrude when irritated. In certain species the larvæ are heavily parasitized, *e.g.* the European *Paraphaedon tumidulus* by the Tachinid fly *Meigenia*. According to Westwood (Introd. i, p. 389, 1839) the larvæ of some members of this subfamily feed socially, a number together on the food-plant, adopting an orderly arrangement. A considerable amount has been written concerning the early stages and biology of a number of species, and notes on several different forms are given below, insects other than Indian being included (as in the volume on HISPINÆ) to render this section more full.*

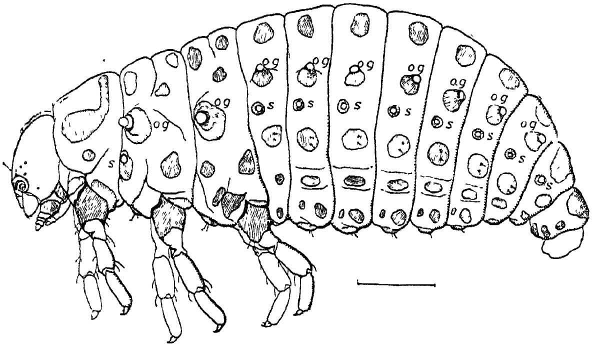

Fig. 5.—*Chrysomela populi*, L. Side view of larva: the line-shaded areas represent strongly chitinized parts; *s.*, spiracles; *o.g.*, openings of odoriferous glands.

India.

Chrysomela [*Melasoma*] *populi*, L.† (See 'Indian Museum Notes,' vol. iii, no. 5, 1894, p. 43.)

Larvæ of this beetle were found on the 9th June, 1893, in Deoband, 9000 feet above sea-level in the North-west Himalayas; whether in this case the food-plant was poplar is not stated. They ranged from 0·10 inch to 0·51 inch (nearly 3 to 13 mm.)

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* [Among comparatively recent illustrations of the larvæ and pupæ of European species may be mentioned the following in Reitter, 'Fauna Germanica; Käfer,' vol. iv, 1912: *Gastroidea polygoni*, pl. 144, fig. 9; *Plagiodera versicolor* and *Melasoma tremulæ*, pl. 146, figs. 9–16.—EDS.]

† See also K. W. Verhoeff, "Ueber die Organisation und Entwicklung der Chrysomeliden *Melasoma populi* und *Phyllodecta vitellinæ*": Arch. Naturg. (Berlin), lxxxiii, Abt. A, Heft 4 (1917), pp. 142–173, 1 pl., 1919.

in length. The head was black, the body yellowish-white with black markings. On the back were numerous paired glands from which little transparent globules of pungent, strong-smelling fluid were extruded when the insect was touched. After a while the globules were withdrawn into the glands, and they could not be extruded more than two or three times in succession before the insect was exhausted. The odour, which is compared to that of prussic acid, scented the whole bush where they were feeding, and was very characteristic of the insect. The larvæ which were kept in captivity moulted but once before pupating. Pupæ were formed between 14th and 21st June. The pupa had much the same general markings as the larva. It remained partially enclosed in the larval skin. In nature the pupæ were found suspended from the underside of leaves and branches of the food-plant. Beetles began to emerge on 22nd June, and

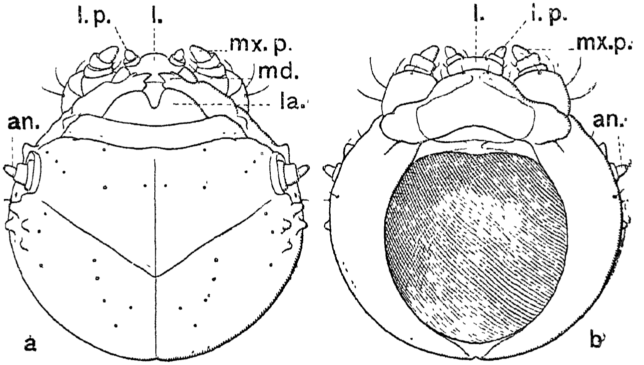


Fig. 6.—*Chrysomela populi*, L., larva:—*a*, dorsal view of head; the median longitudinal line and the two obliquely transverse lines are sutures between strongly chitinized parts; the dots represent the points of origin of setæ, which are not shown: *b*, ventral view of head, the large shaded area being the opening from the head-capsule into the thorax. *an.*, antenna; *la.*, labrum; *md.*, mandible; *mx.p.*, maxillary palp; *l.*, labium; *l.p.*, labial palp.

continued to appear in the rearing-box until 27th June. They afterwards lived for about a week in confinement, but as in this period they were carried down to Dehra Dun, elevation 2100 feet above sea-level, their ordinary period of existence in this stage is likely to be longer. Out of fifty-one larvæ and pupæ six were found to be parasitized by a Tachinid fly. The above observations were made by Mr. C. G. Rogers.

External Anatomy of the Larvæ.—The early stages of *Ch. populi* have been many times described and figured. The length of the cleared specimen of the larva at present under examination, a European example, which is stretched out, is 11½ mm. The body is narrowed anteriorly and more so posteriorly; behind the middle

it is convex dorsally, sloping down gradually in front and more abruptly behind. It consists of the head, three thoracic and nine easily visible abdominal segments, the small anal sucker representing a tenth segment. Each of the first eight abdominal segments bears a pair of spiracles, one lying on each side, in a dark-pigmented spot; there is only one pair of thoracic spiracles, which are situated one on each side, almost ventrally and anteriorly on the mesothorax; therefore there are altogether nine pairs of spiracles. The larva possesses nine pairs of odoriferous orifices, which are arranged in a series along each side as follows: the first pair is on the mesothorax and the next

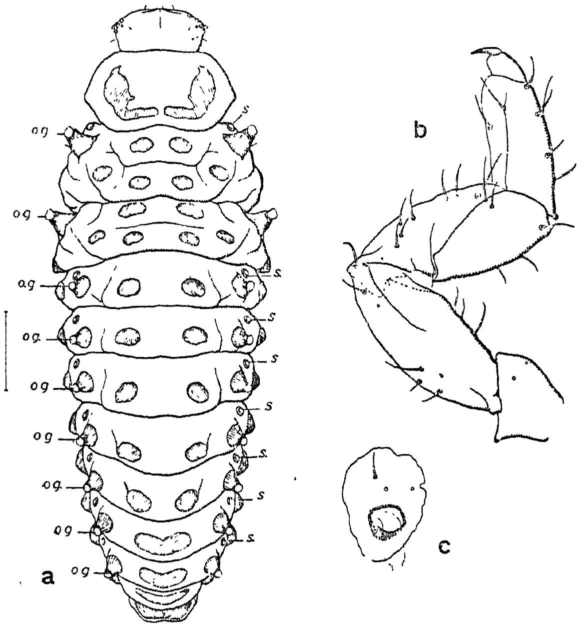


Fig. 7.—*Chrysomela populi*, L., larva:—*a*, dorsal view (s., spiracles; *o.g.*, openings of odoriferous glands); *b*, front leg; *c*, spiracle.

on the metathorax; these are similar to each other in size and larger than those of the abdominal segments, and are situated in a line with the abdominal spiracles; the first seven segments of the abdomen bear the remaining seven pairs of these orifices; each abdominal orifice is situated dorso-laterally slightly posterior to the spiracle of the same segment, compared with which it is much larger and more prominent; the eighth segment of the abdomen has a pair of spiracles but no odoriferous orifices. Viewed dorsally each of these orifices is conical, the body of the

cone being strongly chitinized and the apex being surmounted by a balloon-shaped membranous structure which is capable of being withdrawn inside the cone. When the larva is agitated this extrusible structure is distended with fluid.

Dorsally there are two parallel longitudinal series of dark patches, which are strongly chitinized areas, four on the mesothorax, four on the metathorax, and two on each abdominal segment; on the sixth abdominal segment, where the body is considerably narrowed, the two patches have coalesced to form one large mid-dorsal patch; on the seventh, eighth and ninth the patches have similarly coalesced, the resulting single patches being larger. On the underside of the abdominal segments there are seven longitudinal series of similar patches, three ventral and four ventro-lateral, two of these latter on each side; owing to the position of the legs these series are somewhat interrupted on the underside of the thorax, but the presence of some patches on the sides of the thorax maintains continuity in the series. On the underside of the seventh, eighth and ninth abdominal segments the three ventral patches have in each case coalesced, as have the patches on the dorsal side.

Including the series of odoriferous orifices, the series of spiracles, and those of the chitinized patches, there are altogether thirteen longitudinal series of dark spots on the whole body of the larva. The chitinized patches, more especially on the underside, bear a few fine hairs each.

The *head*, compared with the body, is very small, being only about two millimetres broad; it is more or less quadrate, dorsally convex, sloping in front, the posterior end being uniformly rounded; along the middle there is a longitudinal suture which meets two oblique sutures, one on each side, reaching the base of the antenna; the antennæ are very small, situated antero-laterally and consisting of a base and three segments, the apical one being very minute; posterior to the antenna there is a group of four ocelli on each side; the entire dorsal surface of the head is plain, except for one or two fine setæ. *Mouth-parts*: labrum narrow, much broader than long and with a slight emargination in the middle of the anterior margin; mandibles broad, each with three blunt teeth and no molar part; maxillæ each bearing a four-segmented palpus; labium with a pair of small two-segmented palpi. *Thorax*: the prothorax has a large dorsal shield of hexagonal shape; each of the thoracic segments bears a pair of legs on the underside; each *leg* is composed of the following segments, coxa, trochanter, femur, and tibia, ending in a strong claw.

Russia.

Colaphellus sophiæ, Schall.

The following is a summary of observations recorded by N. Sacharov in various parts of Russia. The insect has been found breeding on wild CRUCIFERÆ, and especially on mustard.

The beetle winters as an imago in the soil, or under leaves, stones, etc. The eggs are laid in heaps on the leaves, mostly on their lower sides, but also on the stalks; they are slightly stuck together, and each heap contains from five to twenty-five or more eggs. The egg stage lasts four days, the larva stage eighteen to twenty-one and the pupal ten to twelve days; the larva burrows into the earth to a depth of about half an inch to pupate. The principal damage is done by the larvæ, which live in colonies and pass from one plant to another. The imagines do not fly readily, and remain on the mustard until it has been cropped; they then pass to cruciferous weeds or vegetables. The beetles also do much harm to cabbages early in spring by destroying the terminal buds.

North America.

The Colorado Beetle, *Leptinotarsa decemlineata*, Say.

The history of how this insect became a pest in America is interesting. It was a native of the Rocky Mountain region, and until about 1855 was satisfied with feeding upon various common weeds of the same genus (that is, *Solanum*) as the potato-plant, and of closely-allied genera. With European immigration and the consequent introduction and cultivation of the Irish potato, the balance of Nature was disturbed. The beetles, finding large quantities of food easily available, began to make the potato patch their feeding-ground, and rapidly spread eastward. It must also be remembered that they were being continually transported by the shipping of potatoes. In 1859 they had reached a point one hundred miles west of Omaha, and in 1864 they crossed the Mississippi into Illinois. They advanced steadily eastward till they were recorded from the Atlantic States in 1874. To-day they are found wherever the potato is cultivated in the United States and Southern Canada.

Life-history.—In the month of October the beetles go underground, where they hibernate till April or May, when the warm weather brings them out. When the food-plant appears above ground, the females lay their yellow eggs on the underside of the leaves near the tips. On an average a female can lay about five hundred eggs during the course of a month. Meanwhile the adult beetles have done considerable damage by eating the young and tender plants. A large number of larvæ hatch out within a week and eat ravenously, increasing in size considerably and very rapidly. The larval life covers a period of about two and a half to three weeks, by which time the larvæ are full-grown and enter the earth, where they form smooth, oval cells in which they undergo their metamorphosis. The adult beetles emerge in about a week or two and, after feeding for a couple of weeks, deposit eggs for a second generation. Throughout the districts where the insect is most injurious there are two generations a year, but farther south there may be at least a partial third generation, and in the north the species has but one generation a year.

Sweden.

Phaedon cochleariæ, F.

In 1913–14, A. Tullgren studied the life-history of this beetle in Sweden, where it does considerable damage to horse-radish. The adults hibernate in winter, appearing in spring and ovipositing in June. At the end of this month young larvæ appear, and in about three weeks they are full-grown, the pupation period being about a fortnight. The new generation of beetles appears at the beginning of August, the succeeding generation being adult at the end of September. The eggs are laid exclusively on the underside of the leaves, generally singly, in small pockets made by the ovipositor of the female. The larvæ are sluggish, but the beetles are very active. The original host-plants of this insect are probably wild species of *Nasturtium*, *Cardamine* and *Cochlearia*, but it has also been recorded from a plant belonging to another family, *Veronica beccabunga*. It also attacks turnip and cabbage.

England.

Phytodecta viminalis, L.

The following is an outline of the life-history of the insect, which feeds on sallow and is sometimes viviparous (see below): larvæ laid May 15th, full-fed June 2nd, pupated June 8th; adults emerged June 20th. They remain for the whole of the rest of the year on the sallows without producing a second generation, and hibernate probably among the dead leaves etc. on the surface of the ground, emerging again in the following spring, when they pair and lay the larvæ of the next generation. The original parents, having laid their young in May, survive and continue feeding for the rest of the year, so that from the end of June onwards there are adults of two generations together on the plants. Several females which laid young in May 1913, and which therefore emerged from the pupa in June 1912, were still alive in November 1913, their adult life having lasted at least eighteen months. The larvæ when first laid are orange-yellow, but they rapidly darken and become quite black. The larvæ, at least when older, possess a pair of dorsal extrusible processes situated close together between the seventh and eighth abdominal segments; they are pink in colour and, when fully extended, about one-twelfth of an inch in length; when the larva is disturbed they are shot out (compare the extrusible vesicles on the back of the larvæ of *Chrysomela populi*, described above, and the structure and habits of *Papilio*-larvæ). The adult has the habit of sitting at the base of a leaf with its head pressed right into the axil, and of falling to the ground when disturbed. The above observations were made by C. B. Williams ('Entomologist,' 1914, p. 249).

Viviparity in CHRYSOMELINÆ.

The phenomenon of giving birth to living larvæ instead of laying eggs has been recorded in this subfamily by several writers

in the genus *Chrysocloa*, Hope (*Oreina*, Motsch.); in *Ch. vittigera*, Suffr., *Ch. cacaliæ*, Schrank, and *Ch. gloriosa*, F., by Champion and Chapman (Trans. Ent. Soc. London, 1901, pp. 1–17, pls. 1, 2); in *Ch. superba* and *Ch. speciosa* by Perroud (Ann. Soc. Linn. de Lyon, 1855, pp. 402–8); and in *Ch. speciosa*, var. *venusta*, by Bleuze (Petites Nouvelles Entomol., Oct. 1st, 1874, and Ent. Mo. Mag., xi, 1874, p. 135). According to Perroud, *Ch. superba* only lays one larva at a time, at intervals of about twelve hours. In *Phytodecta viminalis*, L., C. B. Williams has observed (reference given on p. 11) that the young are laid in a batch, the number in one family varying from twenty-eight to forty. Amongst a batch of thirty females under observation none (with one doubtful exception) laid a second batch, as occurs, for example, in the COCCINELLIDÆ. In an account of the life-history of *Ph. viminalis*, Cornelius in 1857 (Stett. Ent. Zeit., xviii, p. 165) has observed that the beetles laid eggs which hatched on the first day. He describes the eggs as reddish in colour and cylindrical, slightly pointed at the ends. It would appear, then, that the same species can, under different conditions, be either viviparous or oviparous.

Economic Importance.

The CHRYSOMELINÆ are very important from the agriculturist's point of view. They are all plant-feeders, and therefore must be looked upon as potential enemies. Under circumstances favourable to itself a species can assert itself and become a terrible pest—witness *Leptinotarsa decemlineata*, Say, the well-known Colorado Beetle, which has only by great vigilance been prevented from spreading in Europe as it has done in America. The following is a list of species of this group which are known to attack cultivated plants:—

Zygogramma exclamationis, F. America. Wild and cultivated Sunflower.

Leptinotarsa decemlineata, Say. America, Europe. Potato.

Ceralces ferrugineus, Gerst. West Africa. *Manihot glaziovii*.

Colaphellus sophiæ, Schall. Europe. Mustard.

Gastroidea polygoni, L. America, Europe. *Polygonum*, Sugar-beet.

Gastroidea viridula, Deg. England. Dock and Sorrel.

Gastroidea cyanea, Melsh., var. *cæsia*, Rog. California. Grape-vines.

Phaedon armoraciæ, L. Europe. Crucifers.

Phaedon assamensis, Jac. India, Assam. Mustard.

Phaedon cochleariæ, F. Europe. Mustard, Horse-radish.

Phaedon viridis, Melsh., var. *æruginosus*, Suffr. America. Watercress.

Phaedon incertum, Baly. Japan. Turnip.

Paraphaedon tumidulus, Germ. England. Potato (the ordinary wild hosts of this insect are UMBELLIFERÆ, *Chærophyllum*, *Heracleum*, etc.).

Chrysomela [*Melasoma*] *ænea*, L. Norway. Pear.
Chrysomela [*Melasoma*] *cuprea*, F. Europe. Willow, Poplar, Aspen.
Chrysomela [*Melasoma*] *lapponica*, L. America. Willow.
Chrysomela [*Melasoma*] *lineatopunctata*, Forst. (*scripta*, F.). N. America. Willow, Poplar.
Chrysomela [*Melasoma*] *populi*, L. Europe. Willow, Poplar.
Chrysomela [*Melasoma*] *tremulæ*, F. Europe. Willow, Aspen.
Phaedonia areata, F. (*Plagiodera circumcincta*, Sahlb.). Africa. Cotton.
Paropsides duodecimpustulata, Gebl., var. *hieroglyphica*, Gebl. Shillong, India. Pear.
Phytodecta viminalis, L. Europe. Willow.
Phytodecta fornicatus, Brüggem. Russia. Lucerne.
Phyllodecta vulgatissima, L. France. Osier.
Phyllodecta vitellinæ, L. Europe. *Salix*.
Entomoscelis adonidis, Pallas. America. Turnip and Virginian Stock.

In 'Indian Museum Notes,' vol. iii, no. 5, p. 44, 1894, an insect identified by Jacoby as *Phaedon brassicæ*, Baly, was recorded as attacking the mustard crop at Golaghat, Assam. Subsequently Jacoby appears to have altered his opinion and described the Golaghat insect as *Ph. assamensis*, Jac.; I think he was correct in regarding it as a distinct species, for I have examined the types of both species in the collection of the British Museum and find them different. Although there is no record of their attacking the mustard crop at Golaghat on the labels of the insect named *Ph. assamensis* in the British Museum, I do not consider it very far wrong to assume that the latter are some of the actual attackers of the crop at Golaghat.

On the formation of ey or Tables.

The following remarks are inserted here, as the use of dichotomous tables does not appear to have been always understood by workers in India.

A dichotomous key or table of a group of organisms is a concise and comparative statement of a selection of characters arranged in a certain way with the object of facilitating the recognition of species rapidly and without difficulty. In designing a key it is also desirable, where possible, to express relationships in the group, but it is not often that the material at hand lends itself to such treatment, because we are not in possession of all the facts. Keys of the three kinds exemplified below, and sometimes several keys of any one of those kinds, may be framed for the same group of organisms, all being equally serviceable. The first principle in making a key should be a proper selection of characters, which should be easily recognizable and yet contradictory in nature; that is to say, the character chosen should be found in one form or in a group of forms, while in the rest it

should be absent, thus dividing the whole group of organisms into two sections. From each of these sections a character should be chosen which will again divide the section under review into smaller sections; this process is continued until the species are ultimately separated off. Comparative characters should be avoided as much as possible, for by their use is assumed a previous acquaintance with forms comprising the group for which the key is made. Owing to the nature of the material studied, it is sometimes difficult to find exact contradictory characters, and in such cases the statement of a combination of two or more characters may enable one to separate species or groups of species. Sometimes it happens that a group of organisms is at once divisible into more than two different categories which are convenient to use; and although in such a case the key is not strictly dichotomous, yet advantage should be taken of the opportunity.

The characters having been selected, their actual statement in key-form can be made in three ways, which are illustrated by the following examples: namely (1) the spatial form, (2) the numerical, and (3) the double numerical.

(1) *The spatial form.*

A. Anterior coxal cavities open behind.
  a. Antennæ passing beyond the base of the pronotum.
    α. Pronotum black, elytra yellow .... Sp. no. 1.
    β. Pronotum and elytra brown...................... Sp. no. 2.
  a'. Antennæ not passing beyond the base of the pronotum.
    α. Insect blue, with purple stripes on the elytra ...... Sp. no. 3.
    β. Insect with no such stripes on the elytra .... Sp. no. 4.
A'. Anterior coxal cavities closed behind.
  a. Eyes emarginate on the inner side.
    α. Insect elongate, parallel-sided, with the upper side black and underside yellow .... Sp. no. 5.
    β. Insect with no such combination of characters ...... Sp. no. 6.
  a'. Eyes not emarginate on the inner side.
    α. Insect reddish-brown, with black patches on the pronotum.................................... Sp. no. 7.
    β. Insect lighter brown, with no black patches on the pronotum .... Sp. no. 8.

(2) *The numerical form.*

1. Anterior coxal cavities open behind .... 2.
   Anterior coxal cavities closed behind................ 5.
2. Antennæ passing beyond the base of the pronotum ...... 3.
   Antennæ not passing beyond the base of the pronotum .. 4.
3. Pronotum black, elytra yellow .... Sp. no. 1.
   Pronotum and elytra brown.......................... Sp. no. 2.
4. Insect blue, with purple stripes on the elytra .... Sp. no. 3.
   Insect with no such stripes on the elytra .... Sp. no. 4.
5. Eyes emarginate on the inner side .... 6.
   Eyes not emarginate on the inner side .... 7.
6. Insect elongate, parallel-sided, with the upper side black and underside yellow .... Sp. no. 5.
   Insect with no such combination of characters .... Sp. no. 6.

7. Insect reddish-brown, with black patches on the pronotum.	Sp. no. 7.
Insect lighter brown, with no black patches on the pronotum	Sp. no. 8.

(3) *The double numerical form.*

1	(8)	Anterior coxal cavities open behind.	
2	(5)	Antennæ passing beyond the base of the pronotum.	
3	(4)	Pronotum black, elytra yellow	Sp. no. 1.
4	(3)	Pronotum and elytra brown	Sp. no. 2.
5	(2)	Antennæ not passing beyond the base of the pronotum.	
6	(7)	Insect blue, with purple stripes on the elytra	Sp. no. 3.
7	(6)	Insect with no such stripes on the elytra	Sp. no. 4.
8	(1)	Anterior coxal cavites closed behind.	
9	(12)	Eyes emarginate on the inner side.	
10	(11)	Insect elongate, parallel-sided, with the upper side black and underside yellow	Sp. no. 5.
11	(10)	Insect with no such combination of characters	Sp. no. 6.
12	(9)	Eyes not emarginate on the inner side.	
13	(14)	Insect reddish-brown, with black patches on the pronotum	Sp. no. 7.
14	(13)	Insect lighter brown, with no black patches on the pronotum	Sp. no. 8.

In the foregoing three imaginary keys the same characters have been used in three different ways. It will be observed that essentially keys no. 1 and no. 3 are the same, the categories being stated in the same order. In key no. 1 the arrangement of the categories depends upon the space, they being gradually shifted from the left to the right. This becomes a disadvantage when a large number of forms is dealt with. Key no. 3 overcomes this difficulty by numbering them as shown, *e.g.* 1 (8) means that the character contradictory to that stated under 1 should be looked for under 8 and *vice versâ*. The principle involved in key no. 2 is different; the contradictory categories are stated at once, one immediately following the other, and numerals are placed on the right-hand side indicating where the further divisional categories are to be looked for. An important point is that all forms following the statement of a character must possess that character in common: for example, in key no. 2, all forms from 1 to 4 (inclusive) possess the character stated under 1, and those after 5 possess the contradictory character; in key no. 3 all forms from 1 to 7 (inclusive) of the first row of numerals possess the character stated under 1 in common, and those after 8 possess the contradictory character; while in the spatial arrangement this principle is obvious. In key no. 2 numerals are found on the right as well as on the left margin; in no. 3 the numerals are placed on one side, and the cross-references are indicated by numerals in brackets running in a parallel column.

Key to the Genera of Indian Chrysomelinæ.

1.	Anterior coxal cavities open behind .	2.
	Anterior coxal cavities closed (almost closed in APAKSHA) behind..	13.
2.	Claws throughout simple or angularly dilated at the base	3.
	Claws split or cut in the middle	11.
3.	Epipleura of the elytra on the inner margin entirely, or at least towards the apex, with a row of cilia-like bristles *	4.
	Epipleura without cilia-like bristles .	8.
4.	Antennæ comparatively slender, distinctly passing beyond the base of the pronotum	5.
	Antennæ comparatively stouter, just reaching or not reaching the base of the pronotum................	7.
5.	Metasternal process bordered all round by a deep furrow, the sides as well as the apex	CHRYSOLINA, Motsch. [CHRYSOMELA, auctt.], p. 17.
	Metasternal process with furrow at the sides only, the apex not included.	6.
6.	Insects small, 7–8½ mm., coloration metallic, elytra with a postbasal transverse depression, punctuation scattered	AMBROSTOMA, Motsch., p. 44.
	Insects large, 11–14½ mm., non-metallic, elytra with four pairs of longitudinal rows of punctures and no postbasal depression	PARALINA, Baly, p. 46.
7.	Body not spherical, the contrast between the thickened apical segments of the antennæ and the more slender basal segments not strongly marked	EUMELA, Baly, p. 49.
	Body spherical, very convex, the contrast between the thickened apical segments and the basal segments of the antennæ strongly marked ..	SPHÆROLINA, Baly, p. 53.
8.	Base of elytra about twice as broad as width of prothorax	AGASTA, Hope, p. 56.
	Base of elytra not so broad........	9.
9.	Elytra with rows of punctures at regular intervals	PHAEDON, Latr., p. 59.
	Elytra with no such rows of punctures..........................	10.
10.	Insects small, 5–9 mm., convex, ovate, coloration with metallic shimmer, elytral punctuation with a tendency to form rows	PLAGIODERA, Redt., p. 60.
	Insects large, about 11 mm., elongate, coloration without metallic shimmer, elytral punctuation generally confused	CHRYSOMELA, L. [MELASOMA, Stephens], p. 67.

* To appreciate this character, see fig. 15 B, p. 46.

11. Epipleuron vertical	PAROPSIDES, Motsch., p. 71.
Epipleuron horizontal	12.
12. Tibiæ furnished externally with a spine or tooth	PHYTODECTA, Kirby, p. 77.
Tibiæ with no such spine or tooth ..	PHYLLODECTA, Kirby, p. 83.
13. Claws split or cut in the middle	14.
Claws simple throughout or slightly angularly dilated near the base ..	15.
14. Body ovate, strongly convex	LYCARIA, Stål, p. 85.
Body elongate, more or less parallel-sided	CHALCOLAMPRA, Blanch., [p. 8[illegible].
15. Insect apterous	16.
Insect with wings	POTANINIA, Weise, p. 92.
16. Body elongate, considerably narrowed behind.........................	PSEUDOLINA, Jac., p. 90.
Body ovate, somewhat narrowed behind.........................	APAKSHA, gen. n., p. 95.

The genus *Synerga*, Weise, is not included in the above key: see remarks on p. 21. Neither does the genus *Entomoscelis*, Chevr., find a place in the key, since, as explained below (p. 9[illegible]), I believe that the Indian species referred to it, namely *E. metallica*, Baly, will prove to be a synonym of *Potaninia assamensis*, Baly, and that true representatives of *Entomoscelis* have yet to be found in the region under review.

Genus **CHRYSOLINA**, *Motschulsky*.

Chrysolina, Motsch., Schrenck's Reisen Amurl. ii, 1860, p. 206.
Chrysomela, L., Syst. Nat. ed. x, 1758, p. 368 (pars); Chapuis, Gen. Col. x, 1874, p. 397; Fowler, Col. Brit. Isl. iv, 1890, p. 301.*

GENOTYPE, *Chrysomela staphylea*, L. (Europe).

In the 'Annals and Magazine of Natural History' for January 1925 ((9) xv, pp. 95, 96) I have explained at length why it is unfortunately necessary to propose a new name for the genus known for so long, and by so many authors, as "*Chrysomela*." In course of determining what is the genotype of *Chrysomela*, L., I discovered that Latreille in 1810 cited *Ch. populi* for that purpose. Unluckily Stephens in 1831 made that common species the type of his genus *Melasoma*, and as *Melasoma populi* it has long been known. It follows, however, that *Melasoma* must fall as a synonym of *Chrysomela*, L. (see below, p. 67 of this volume), and that another name must be found for the genus so long referred to as "*Chrysomela*." Among the synonyms that have

* For a complete list of references see Weise's Catalogue, 'Coleopterorum Catalogus,' edited by Junk and Schenkling, part 68, Berlin, 1916. In the present work a full bibliography is in some cases not given, because some of the references have no relation to our fauna; only those are quoted which have a direct relation to the Indian fauna or which form part of a large general work containing constructive principles, such as Chapuis' or Fowler's works.

been proposed, some cannot be used, for reasons explained in my paper cited above. But there are several names published in 1860 by Motschulsky as new genera, which have since been sunk as synonyms of "*Chrysomela*." From among these the name *Chrysolina* is here selected, and a common European species, *Chrysomela staphylea*, L., is designated as its genotype.

Since the time of Linnæus this genus has (under the name *Chrysomela*) at various time served as a repository of almost all insects belonging to this subfamily, but as later writers observed differences in a more critical manner, species were separated off, new genera being proposed to contain them. Even now it is the largest genus in the subfamily. So far as the species within our faunistic limits are concerned, the genus may be characterized as follows:—The insects are generally oblong or elongate; in one or two cases they are strongly convex. *Head*: antennæ always separated by the whole width of the front of the head, rarely passing beyond the middle of the elytra, generally within that limit, frequently shorter; the basal five or six segments differ in structure from the following segments, the former being more slender, shining and less pubescent, while the latter become more or less thicker and opaque; of the basal segments the first is large, thickened and sometimes club-shaped, and the third is the longest, while of the apical segments the last is the longest and often bluntly pointed, the rest being alike in form; clypeus separated from the rest of the surface by a transverse line, which may be curved or may consist of two straight lines meeting at a point in the middle, from which a median longitudinal line generally proceeds towards the vertex; these lines vary in the intensity of their impression, the latter sometimes being obsolete; surface generally punctate, but sometimes the punctures are obsolete, it may be depressed in the middle, the areas round the roots of the antennæ being slightly elevated; maxillary palpi variable, sometimes having the ultimate and penultimate segments of different lengths, the former slightly longer than the latter or *vice versâ*. *Prothorax*: pronotum always broader than long, but sometimes the length so nearly approaches the breadth that the whole looks quadrate; front margin generally concave, fitting the width of the head, front angles more or less produced but always rounded, sides varying in their inclination to each other, the basal margin usually sinuate; upper surface generally punctate, each side having a longitudinal excavation containing coarser and confluent punctures; between the excavation and the extreme margin the surface is generally convex and impunctate or very finely and sparsely punctate; these characters vary so that sometimes the excavation and the punctures may be obsolete, or on the other hand they may be very deep and the convex marginal strips greatly accentuated. *Scutellum* always triangular, varying within very narrow limits, among our species impunctate except in a few cases *. *Elytra* almost always slightly broader at the base than

* *Ch. vishnu*, *Ch. manipurensis* and *Ch. cœlestina*.

the prothorax, always punctate, the punctures being in one or two cases completely confused and finely impressed, but as a rule they have a tendency towards an arrangement in rows, which in many cases are paired; sometimes the interstices are punctate and sometimes they are not; when the interstitial punctures are very numerous the striæ are rendered unrecognizable; a short scutellar and a sutural series are always observable in the forms with striated elytra; in one elytron the punctures may vary in size and in the intensity of their depth, the interspatial punctures being generally finer. *Underside* generally finely punctate, each puncture sometimes bearing a fine silvery hair; epipleura of the elytra broader at the base and narrower in the apical part, the inner edge of which bears a row of cilia-like fine bristles, even if these are not found all along the edge; metasternal process bordered all round by a deep furrow; anterior coxal cavities always open. *Legs*: the claw-segment of the tarsus always projects much beyond the bilobed segment, the latter being always unsplit along its middle, so that consequently the apical edge of the segment is always entire; claws always simple throughout. To summarize the constant characters of the genus: (1) antennæ separated by the whole width of the head: (2) they pass at least beyond the pronotum: (3) pronotum always broader than long, even if only by about one half millimetre; (4) elytra always punctate; (5) metasternal processes bordered all round by a deep groove; (6) inner edge of epipleuron, at least towards the apex, bearing a row of cilia-like fine bristles; (7) third, *i.e.* the bilobed, tarsal segment entire, not split longitudinally along the middle; (8) claws simple throughout; (9) anterior coxal cavities always open.

Range. World-wide.

Key to the Species.

1. Each elytron with five longitudinal series of round impunctate areas	*Ch. exanthematica*, Wied., [p. 22.
Elytron with no such areas	2.
2. Elytral punctures entirely confused, without any tendency to form rows, not deeply impressed	3.
Elytral punctures deeply or feebly impressed, either arranged in rows or with at least a tendency to form rows	4.
3. Insect large, length 10–10½ mm., opaque, with interstices between the elytral punctures minutely scratched or reticulate..........................	*Ch. indica*, Jac., p. 24.
Insect small, length 7½ mm., shining rich brown, the interstices not reticulate or minutely scratched	*Ch. longicornis*, sp. n., [p. 25.
4. The outer margin all round the elytra bordered with red-brown............	*Ch. vishnu*, Hope, p. 23.
The outer margin with no such border..	5.
5. Some of the interstices between the elytral rows of punctures raised	*Ch. carinata*, Jac., p. 26.

None of the interstices raised .... 6.
6. Each elytron with four well-defined, paired rows of punctures, the punctures in each row closely placed and regularly arranged and the interstices (seen under a high power) very finely punctate; body oblong, parallel-sided .... 7.
No such combination of characters .... 8.
7. Elytral punctures strongly impressed .. *Ch. manipurensis*, sp. n., [p. 27.
Elytral punctures feebly impressed .... *Ch. dohertyi*, sp. n., p. 27.
8. Each elytron more sparsely punctate, the punctures arranged in paired rows (though usually incompletely so) and not closely placed in each row; interstices impunctate .... 9.
Each elytron closely and thickly punctate, interstices punctate .... 14.
9. Pronotum impunctate (or with at most one or two scattered punctures)...... 10.
Pronotum punctate .... 11.
10. Prothorax black, elytra dark brown or rufous; body convex, short with apical end of elytra not tapering .... *Ch. templetoni*, Baly, [p. 28.
Body oblong-elongate, convex, tapering towards apex of elytra .... *Ch. krishnu*, Baly, p. 29.
11. Apical segment of maxillary palp conical, less stout than the preceding segment; elytral punctures deeply impressed, more regular in arrangement .... *Ch. ceylonica*, sp. n., p. 30.
Apical segment of maxillary palp truncate, not conical, stouter and larger than, or at least equal to, the preceding segment .... 12.
12. Prothorax almost quadrate, only slightly broader than long; colour dark greenish or purplish, elytra cupreous, antennæ and tarsi black .... *Ch. andrewesi*, Jac., p. 31.
Prothorax transverse, much broader than long; colours different............. 13.
13. Insect apterous, colour brown with brassy sheen...................... *Ch. fulvoænea*, Jac., p. 31.
Insect winged, with brassy sheen, but not brown .... *Ch. madrasæ*, Jac., p. 32.
14. Insect with brilliant metallic colours and with a longitudinal purple or steel-blue stripe on each elytron .... 21.
Insect with no such colouring, or at least without the stripes .... 15.
15. Pronotum (seen from above) having at each side a deep longitudinal channel bordered by a prominently raised strip, and its surface uniformly punctate with small punctures throughout.......... *Ch. cœlestina*, Baly, p. 33.
Insect with no such combination of characters .... 16.
16 Insect large, length 10-11 mm., breadth 6-7 mm.; black with æneous sheen on

the upper side, blue on the underside; scutellum blue .... *Ch. cœrulipes*, Harold, [p. 34.

Insect always smaller and with no such combination of characters .... 17.

17. Pronotum almost flat in the middle and with hardly any longitudinal depression on either side....................... 18.

Pronotum distinctly convex in the middle and impressed on either side, where the punctures are larger and deeper ...... 19.

18. Prothorax and elytra concolorous ...... *Ch. inconstans*, Wied., [p. 35.

Prothorax and elytra differently coloured *Ch. conglomerata*, sp. n., [p. 37.

19. Body elongate; elytral punctures fine, more or less arranged in irregular rows, upper side smooth................. *Ch. karachia*, sp. n., p. 38.

Elytral punctures coarse and deep, upper side with a more or less rough appearance .... 20.

20. Elytra very thickly punctate, the punctures indistinctly arranged in rows and the surface of the anterior portion of the elytron indistinctly wrinkled .... *Ch. stevensi*, Baly, p. 39.

Elytra not very thickly punctate, and with no wrinkling of the surface of the anterior portion..................... *Ch. aurata*, Suffr., p. 41.

21. Insect large, length 8 mm., breadth 5 mm.; each elytron with two longitudinal, brilliant cupreous bands enclosing a deep purplish-blue band........ *Ch. bella*, Jac., p. 39.

Insect small, length 6 mm., breadth 3 mm; each elytron with a deep blue-purplish band along the middle on a general blue-green background without any cupreous colour .... *Ch. coromandeliana*, sp. n., [p. 40.

Chrysolina perforata, Redt. (p. 43), *Ch. pyrrhopyga*, Stål (p. 43), and *Ch. nepalensis*, Hope (p. 43) are not included in the above key, as it has not been possible to examine specimens of them, but only to transcribe or translate the original descriptions.

As remarked above (p. 17), the genus *Synerga*, Weise, is not included among the genera of Indian Chrysomelinæ in this volume. The reason for this omission is as follows. Weise gave the following diagnostic characters of *Synerga* (Arch. Naturg. lxvi, 1, 1900, p. 283):—The second segment of the maxillary palp is not thickened, and on the underside of it there is a long excavation for the reception of the next segment; the last segment is rotundate and emarginate at the apex. The posterior angles of the prothorax are simply marginate. The epipleura of the elytra towards the apex are marginate and without hairs. The mesosternum at the anterior margin is fairly thickened and subangulate. The metasternum is anteriorly broadly thickened.

At the time of founding the genus Weise remarked that the species for which he erected it, namely the East Asiatic *Chrysolina bella*, Jac., was wrongly supposed to be the same as

Ch. cæruleans, Scriba, var. *angelica*, Reiche; and in his catalogue (Junk and Schenkling, Berlin, part 68, 1916, p. 147) he has recorded *bella* Jacoby and *angelica* Baly (*nec* Reiche) as synonyms of *Synerga modesta* (Fabr.). I have not seen *Synerga modesta* (Fabr.), and as I cannot find the above characters of the genus *Synerga* in the Himalayan specimens of *bella* which are before me, I have retained *bella* in the genus *Chrysolina*, and give here a translation of Weise's remarks. I do not know if Weise saw Jacoby's type of *bella*, which is in the British Museum.

1. **Chrysolina exanthematica**, *Wiedemann.*

Chrysomela exanthematica, Wied., in Germ., Mag. Ent. iv, 1821, p. 178; Kolbe, Arch. Naturg. lii, 1886, p. 229.
Chrysomela consimilis, Baly, Trans. Ent. Soc. Lond. 1874, p. 172.
Chrysomela guttata, Gebl., Mém. Ac. Mosc. v, 1817, p. 316; Motschulsky, Schrenck's Reisen Amurl. ii, 1860, p. 229; Baly, Trans. Ent. Soc. Lond. 1879, p. 363; Marseul, Abeille, xxv, 1887, p. 163; Rybakow, Hor. Ross. xxiii, 1889, p. 286; Jacobs., *op. cit.* xxvii, 1873, p. 125; Weise, Arch. Naturg. lxiv, 1898, p. 198; Jacobs., Käf. Russl. 1909, pl. 57, f. 31 (*nec* F.).
Chrysomela guttata, Gebl., var. *marseuli*, Weise, *t. c.*, p. 200.
Chrysomela lævipunctata, Lewis, Cat. Col. Japan, 1879, p. 28.
Lithoptera musiva, Gebl., Ledeb. Reise, ii, 3, 1830, p. 215; Motsch., Schrenck's Reisen Amurl. ii, 1860, p. 210.
Chrysomela speculifera, Redt., in Hügel, Kaschmir, iv, 1848, p. 558.
Lithoptera subænea, Motsch., Schrenck's Reisen Amurl. ii, 1860, p. 229, pl. 11, f. 13; Marseul, Abeille, xvi, 1878, p. 151 (*nec* Suffr.).

Body oblong, moderately convex. Colour deep metallic steel-blue or violet; in many specimens the colour of the upper side is mixed with cupreous sheen, the terminal portions of each of the basal segments of the antennæ and those of the ventral plates of the abdomen being edged with brown.

Head closely punctate, Y-shaped mark feebly impressed. Antennæ passing beyond the pronotum to a certain extent, moderately stout, the six or seven basal segments shining, the apical four or five pubescent and more incrassate, the third segment hardly longer than the fourth, the second nearly half the length of the third. *Prothorax* almost twice as broad as long, sides rounded and narrowed anteriorly, anterior angles acute but rounded, upper surface closely punctate, each side having a longitudinal convex area which is separated from the disc by a band of coarse and confluent punctures, the surface of the convex area being also closely punctate. *Scutellum* ovate, smooth, impunctate. *Elytra* broader at the base than the prothorax, with sides more or less parallel, broadly rounded towards the apex, upper surface very closely and irregularly punctate; each elytron has five longitudinal and parallel rows of smooth, shiny, impunctate round spots; these latter are not of equal size, some being larger than others; the row along the suture terminates at about the middle, all the rows are more or less convergent on the apical area, and

there are altogether about fifty spots in all the rows on each elytron. *Underside* sparsely and finely punctate.

Length, $8\frac{1}{2}$–$9\frac{1}{2}$ mm.

BENGAL: Berhampore (*Atkinson*); Murshidabad. NORTH-WEST FRONTIER: N.W. Himalayas (*G. Bryant*); Peshawar, Taru, iv. 1916 (*T. Bainbrigge Fletcher*, Pusa Coll.); Khyber Pass, Alimasjid, 25. iv. 1916 (*T. B. Fletcher*, Pusa Coll.). UNITED PROVINCES: Dehra Dun, Doiwala, 7. viii. 1922 (*N. C. Chatterjee*); Ranikhet Division, Kumaon, vi. 1920, 1 example (*H. G. Champion*). PUNJAB: Gurdaspur, 15. x. 1918 (Pusa Coll.). BIHAR: Pusa, 23. vi. 1905 (*C. S. Misra*); same locality, iii. 1921 (both Pusa Coll.). RAJPUTANA: Kulu. This insect has a very wide distribution, having been taken in SIBERIA, CHINA and JAPAN.

Type probably in Copenhagen.

2. Chrysolina vishnu, *Hope*.

Chrysomela vishnu, Hope, in Gray, Zool. Misc. 1831, p. 30; Baly, Trans. Ent. Soc. Lond. 1879, p. 189, pl. 2, f. 14.

Chrysomela cingulata, Baly, Journ. of Ent. i, 1860, p. 97; id., *t. c.*, 1861, p. 301.

Diphyrrhynchus geminatus, Allard, Bull. Soc. Ent. France, 1896, p. 320; Lesne, *op. cit.*, 1915, p. 189.*

Body elongate-ovate. Colour blackish-æneous or obscure cupreous, antennæ blackish-blue; outer margin bordered with fulvous-reddish.

Head finely but distinctly punctate, the punctures scattered on the forehead, rather more crowded on the lower portion of the face. Antennæ slender, shorter than half the body, their apical segment oblong-ovate with its apex subacuminate, the three basal segments more or less fulvous beneath, the third hardly longer than the fourth, the second about half the length of the third; the five basal segments shining, the rest opaque and finely pubescent. *Prothorax* twice broader than long; sides nearly straight and parallel behind the middle, narrowed and rounded in front, more suddenly narrowed at the apex; upper surface with its lateral borders raised, convex and bounded internally by a broad, shallow, longitudinal depression, more distinct at the base, the surface of which is covered with large, deeply impressed, irregularly confluent, variolose punctures; disc, together with the convex margin, rather remotely covered with distinct but fine punctures. *Scutellum* smooth, shining, semi-ovate, with a few punctures at the base. *Elytra* slightly broader than the prothorax, five times its length; sides subparallel; each elytron with eleven rows of distinct, deeply impressed punctures; this includes

* This species was described by Allard as a Tenebrionid, but in 1915 Mons. Lesne pointed out that it is really a *Chrysolina*. I have recently sent two authentic speimens of *Ch. vishnu*, Hope, to Mons. Lesne, who, on comparing Allard's type with them, found it to be identical.

the short scutellar row, next to which is a row running parallel to the suture; the outermost row is finer and placed on the extreme edge of the rufous border, and between these extremes the eight other rows form four double series placed at nearly equal distances on the disc; the interspaces vaguely and distantly reticulate-strigose, minutely and somewhat remotely punctate. *Underside* shining, distantly punctate; legs covered rather sparsely with deep punctures.

Length, 7–9 mm.

NEPAL (type-locality). DARJEELING DISTRICT: Lebong, 5000 ft., ix. 1908 (*H. M. Lefroy*, Pusa Coll.); Kurseong, 5. x. 1908 (*Lefroy*), and 5000 ft., 7–20. vi. 1922 (*Fletcher*, both Pusa Coll.). SIKKIM: Mungphu (*Atkinson*). UNITED PROVINCES: Almora, Haldwani District, Kumaon, xi. 1917, viii. 1919, vii. 1920 (*H. G. Champion*), 8 examples; Mussoorie, 7500 ft., viii. 1906 (*Lefroy*); Jolikoti, 16. v. 1915 (Pusa Coll.).

Type in the Hope Collection.

Nearly allied to *Chrysolina marginata* (Europe), but easily separated from that species by its larger size, finer punctuation, and above all by the different form and greater length of the terminal segment of its antennæ, which organs themselves are also more slender than in *Ch. marginata*. In the present species the last segment is more slender and nearly twice the length of the penultimate, whilst in the other species it is broader, shorter in relation to the penultimate, and more regularly ovate, with its upper edge towards the apex oblique.

3. Chrysolina indica, *Jacoby*.

Chrysomela indica, Jac., Entomologist, xxvi, Suppl. 1893, p. 105.

Apterous. Body very strongly convex in the middle. Colour opaque greenish- or bluish-æneous; antennæ and tarsi black; elytra reddish-fulvous, more or less æneous, with sometimes the suture obscure æneous.

Head opaque, finely and sparingly punctate on the upper area, the lower part including the clypeus more strongly punctate. The antennæ nearly extending to a third of the elytra, the third segment distinctly longer than the fourth and twice as long as the second, the apical segments more thickened than the basal ones. *Prothorax* twice as broad as long, broader in the female, the sides slightly rounded and widened towards the apex, the anterior angles rounded, not produced, the disc irregularly, strongly but remotely punctate, the sides with a longitudinal convex border bounded inwardly by a furrow, not strongly marked, but more closely punctate than on the disc, where the punctuation is scattered and consists of a mixture of finer and coarser punctures of varying degree. *Scutellum* almost as broad as long, with the base straight and apex widely rounded, smooth and impunctate.

Elytra strongly rounded towards the middle and very convex, scarcely shining, very finely, closely and irregularly punctate, the interstices minutely scratched. *Prosternum* strongly longitudinally sulcate.

Length, 10–10½ mm.

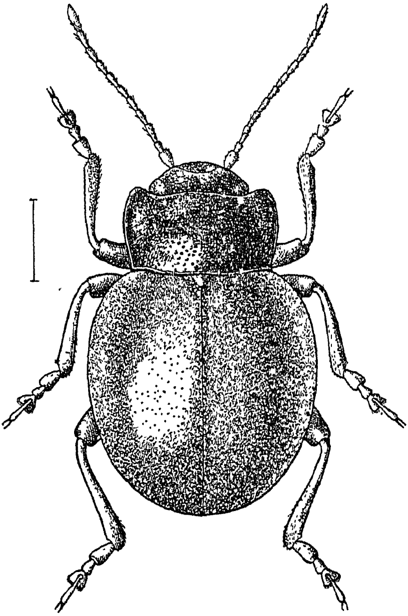


Fig. 8.—*Chrysolina indica*, Jac.

MADRAS: Madura; Cuddapah, 17 June, 1910 (*Rev. T. Campbell*); Shembaganur, Palni Hills, 6000 ft., 6 examples (Pusa Coll.).

Type in the British Museum.

4. **Chrysolina longicornis**, sp. nov.

Body convex, narrowed posteriorly. Upper side shining rich brown with a slight brassy sheen, antennæ and underside deeper brown or pitchy brown, the suture and the basal margin of the elytra and pronotum narrowly edged with black.

Head large, quadrate, moderately closely and finely punctate; clypeus depressed, separated from the rest of the surface by an impressed transverse curved line, the longitudinal, median line almost absent. Antennæ long, slender; first segment large,

thickened, second segment small, nearly half the length of the third, fourth, fifth, and sixth, which are almost equal one to the other, each of them shorter than the third, the next five segments similar but very slightly thicker, the last pointed. *Prothorax* broader than long, front margin almost straight, sides and basal margin also straight, anterior angles slightly drawn forwards and rounded, posterior angles right angles; upper surface gently convex from side to side, fairly closely and finely punctate. *Scutellum* broadly triangular, smooth, impunctate. *Elytra* not broader at the base than the prothorax, but, immediately behind the base, broadened, attaining their greatest width about the middle, then narrowing towards the apex; smooth, shining, confusedly and thickly covered with very fine punctures. *Underside* smooth, shining, very sparsely and finely punctate.

Length, $7\frac{1}{2}$ mm.; *breadth*, 5 mm.; *length of antenna*, 5 mm.

PONDICHERRY.

Type in the British Museum; described from one example.

5. Chrysolina carinata, *Jacoby*.

Chrysomela carinata, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 94.

Apterous. Colour metallic greenish or æneous, antennæ black, elytra obscure cupreous, opaque.

Head almost impunctate. Antennæ rather slender, more than half the length of the insect, the third and terminal segments longest, the fourth and following segments of equal length, the second about half the length of the third. *Prothorax* twice as broad as long; sides very feebly rounded, with a longitudinal, strongly convex area, bounded inwardly by a deep longitudinal furrow, the convex area sparsely impressed with a few punctures; the disc convex from side to side and impunctate, except for one or two stray punctures; anterior angles acute and rounded, posterior almost right angles. *Scutellum* greenish, impunctate. *Elytra* almost as broad at the base as the prothorax, then widened and pointed at the apex; each elytron with a scutellar row, a single sutural row and four imperfectly arranged double rows of deep punctures, the latter in each row not closely placed. In the male the intervals are more feebly raised, the elytra dull coppery, and the first segment of the anterior tarsi broader. In the female the colour may be more lustrous, along the suture especially; the intervals between the elytral rows are more strongly costate, the one between the first and second rows of punctures, near the suture, is broad, the other four are more sharply raised, the third and fourth costæ reuniting below the middle. *Underside* finely and rather closely punctate, shining.

Length, ♂ 7–8 mm., ♀ 9 mm.

NILGIRI HILLS.

Type in the British Museum.

6. Chrysolina manipurensis, sp. nov.

Body oblong, almost parallel-sided, rounded towards the apex and somewhat convex behind the middle. Upper side very dark brassy, black mixed with dark green.

Head broad, vertex finely and sparsely punctate, anteriorly (including the clypeus) more coarsely punctate; the clypeus delimited by a strongly impressed curved line, the longitudinal median line hardly perceptible. Antennæ less than half the length of the body, the six basal segments shining, the five apical ones slightly thicker, pubescent and opaque; first segment thickened, second small, nearly half the length of the third, the latter longer than the fourth, fifth and sixth segments each equal to the fourth, the last pointed. *Prothorax* broader than long, almost as broad at the base as the elytra; anterior margin widely emarginate, basal margin strongly bisinuate, sides straight near the base, widely rounded anteriorly, anterior angles rounded, posterior acute; the central disc gently convex from side to side, closely and uniformly punctate with fine punctures; each side is longitudinally convex, with similar fine punctures, and is bounded inwardly by a longitudinal deep furrow in which are much coarser and larger punctures. *Scutellum* ovate with apex much narrowed, its surface near the base, seen under a high power, with a few fine punctures, the rest impunctate. *Elytra* almost as broad as the prothorax at the base; each elytron has the following rows of moderately strong punctures: a short scutellar row of a few punctures, a single sutural row reaching right to the apex, four pairs of rows in which the punctures are regularly arranged, being placed close to each other; interstices smooth and very finely punctate, the punctures being more in number on the apical area than anteriorly; this is better seen under a high power. *Underside* finely and sparsely punctate throughout.

Length, 8 mm.; *breadth*, 5 mm.

ASSAM: Manipur (*Doherty*).

Type in the British Museum. Described from two examples.

7. Chrysolina dohertyi, sp. nov.

Body oblong, parallel-sided, convex behind the middle, somewhat narrowed posteriorly towards the apex. Upper side shining black with purple and brassy reflections; underside black and less shining.

Head broad, impunctate (under a high power a few very minute and scattered punctures may be seen); clypeus delimited by a well-impressed curved line, vertical longitudinal median line faintly impressed. Antennæ a little surpassing the base of the pronotum, the five basal segments shining, the next six segments thickened and opaque; first segment large and thickened, second much smaller than third, fourth and fifth each shorter than the third, the last segment long and with a pointed apex. *Prothorax* broader than long, front margin widely emarginate, sides slightly

rounded, basal margin gently sinuate, anterior angles acute and rounded, posterior angles almost right angles; central disc gently convex from side to side and uniformly covered with fine punctures, a longitudinal area on each side convex and impunctate, bounded inwardly by a broad longitudinal depression containing coarse and confluent punctures. *Scutellum* small, triangular, with surface impunctate. *Elytra* as broad at base as the prothorax; each elytron bears the following rows of fine and feebly impressed punctures: a short scutellar row, a sutural row extending right to the apex, and four pairs of almost equidistant rows; the punctures are closely and regularly placed, the interstices smooth and very sparsely covered with very fine punctures, which can be seen under a high power. *Underside* smooth and impunctate.

Length, 7 mm.; *breadth*, 4 mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum. Described from five examples.

8. **Chrysolina templetoni**, *Baly*.

Chrysomela templetoni, Baly, Journ. of Ent. i, 1860, p. 93; id., *t. c.*, 1861, p. 301.
Chrysomela jole, Stål, Öfv. Vet.-Ak. Förh. xvii, 1860, p. 463.
Chrysomela gahani, Jac., Entomologist, xxxii, 1899, p. 81.

Body convex. Colour obscure blackish-æneous, shining, elytra obscure rufous, antennæ black.

Head nearly impunctate. Antennæ slender, more than half the length of the body, slightly incrassate towards the apex; the four basal segments shining and hairless on the upper side, the rest covered with silvery hairs; first segment thickened, second small, nearly half the length of the third, fourth and fifth segments each shorter than the third, sixth elongate, the last pointed. *Prothorax* twice broader than long, sides slightly dilated from the base to before the middle, thence rounded and narrowed to the front end; upper surface smooth, shining and impunctate except for one or two punctures impressed here and there; sides longitudinally convex, bounded inwardly by a longitudinal depression. *Scutellum* semi-ovate, smooth and impunctate. *Elytra* subglobose, smooth, shining; each elytron impressed with ten rows of distinct punctures including a short scutellar row, the next runs parallel to the suture, the others arranged in pairs, the puncturing of the outer pair more distant than in the rest; all the rows less distinct and nearly obsolete, and with the punctures in each row irregular and far apart, near the apex; outer margin impressed with a single row of fine punctures; the whole surface is covered with round black spots, except, to a certain extent, the impunctate interstices between the double rows; these black spots have the appearance of being underneath the shining surface. *Underside* finely punctate; legs slender, rather elongate.

Length, 7–8 mm.

CEYLON.

Type in the British Museum.

9. Chrysolina krishnu, *Baly.*

Chrysomela krishnu, Baly, Ann. Mag. Nat. Hist. (3) x, 1862, p. 21.
Chrysomela semifulva, Jac., Entomologist, xxvi, Suppl. 1893, p. 106.

Body narrowly oblong-ovate, pointed towards the apex of the elytra; its shape is characteristic. Colour metallic dark bluish or slightly purplish, or bright cupreous, elytra sometimes obscure fulvous with a purplish gloss.

Head broad, impunctate, greenish; clypeus depressed and separated from the rest of the surface by an angular impression, the longitudinal median line feebly impressed. Antennæ extending to the base of the elytra or just a little beyond, black,

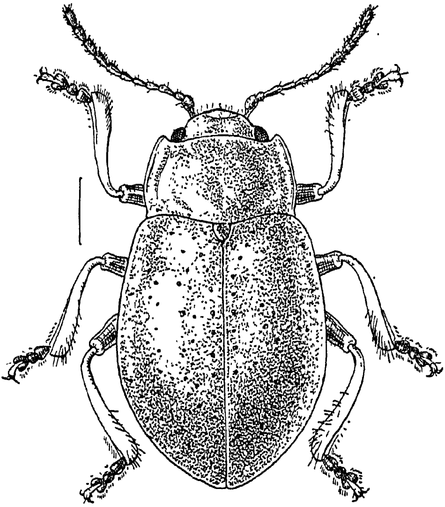


Fig. 9.—*Chrysolina krishnu*, Baly.

the terminal segments gradually thickened, the four basal segments more shining than the rest, which are opaque and pubescent; first segment large and thickened, second small, nearly half the length of the third, fourth and fifth each shorter than third. *Prothorax* more than twice as broad as long, lateral margin straight towards the base, slightly rounded anteriorly; disc impunctate, with a central feebly impressed longitudinal line, which may be absent in some cases, from the base to the front margin; the sides thickened, bounded within by a longitudinal furrow extending the whole length; metallic greenish, the disc more obscure purplish. *Scutellum* semi-ovate, smooth, impunctate, apex broadly rounded. *Elytra* scarcely broader at the base than the prothorax, dark fulvous with a slight purplish gloss; each elytron with four

double rows of well-impressed punctures, a short scutellar row of a few punctures and a single row placed near the suture; the punctures very distantly placed and at unequal distances in the rows; those of the third double row are quite irregularly distributed, with scarcely any arrangement in pairs; the extreme lateral margin is also impressed with a row of deep punctures. There is considerable variation in the puncturing and arrangement of the rows, also in the depth of impression; sometimes the punctures are comparatively more crowded near the base and more distant on the hinder half of the disc. In one specimen in the British Museum Baly attached a separate (unpublished) name, *Ch. dormari*, owing to the insect having the punctures in a more or less obsolescent condition, but I think it is merely an example of *Ch. krishnu*: it is, like the rest, from South India. The punctures themselves are deeply coloured in the centre. *Underside* and legs greenish, scarcely punctured; prosternum without a longitudinal furrow.

Length, 8½–9 mm.

South India: Ootacamund. Also one example from the Nilgiri Hills (Pusa Coll.).

Types of both *krishnu* and *semifulva* in the British Museum; having examined both, I am convinced that *semifulva* is a synonym of *krishnu*.

10. **Chrysolina ceylonica**, sp. nov.

Body oblong, broader posteriorly, convex. Colour brilliant metallic blue, sometimes with bright cupreous sheen on the elytra; underside less brilliant than upper side.

Head broad, sparsely and finely punctate; clypeus depressed, separated from the rest of the surface by an impressed curved line which is interrupted in the middle by a slightly elevated longitudinal area along the median line. Antennæ moderately stout, passing a little distance beyond the base of the pronotum, the five basal segments shining, the next six segments more thickened and opaque; first segment thickened, second small, nearly half the length of the third, fourth and fifth each shorter than third, each of the following segments becoming gradually slightly larger. *Prothorax* broader than long, sides straight towards the base, rounded anteriorly, front margin widely emarginate, basal margin almost straight from the middle to the side, anterior angles rounded, posterior almost right angles; surface gently convex from side to side, with a few scattered and deeply impressed punctures in the middle area, the lateral longitudinal area longitudinally convex, bounded inwardly by a longitudinal depression in which are coarse and confluent punctures. *Scutellum* more or less triangular, with base straight and apex rounded, the surface smooth and impunctate. *Elytra* broader at base than prothorax; each elytron has the following rows of punctures: a short scutellar row of a few punctures only, the next row along the suture, then four pairs of rows; punctures

deeply impressed, regularly arranged, interstices impunctate. *Underside* sparsely covered with silvery hairs on the abdominal sternites, and generally impunctate.

Length, 9 mm.; *breadth*, 6 mm.

CEYLON.

Type in the British Museum. Described from two examples.

11. Chrysolina andrewesi, *Jacoby*.

Chrysomela andrewesi, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 95.

Apterous. Colour dark greenish or purplish, elytra cupreous in some specimens, antennæ and tarsi black.

Head very sparsely covered with fine punctures; clypeus depressed and the longitudinal median line feebly impressed. Antennæ rather short, passing a little distance beyond the pronotum, the six terminal segments slightly thickened, opaque and pubescent; first segment large and thickened, second small, about half the length of the third, fourth and fifth each shorter than third, sixth still shorter, the last pointed. *Prothorax* almost quadrate, very slightly broader than long, sides rounded anteriorly, anterior margin emarginate, basal margin straight from the middle to the side; disc with some few fine punctures, in some specimens more numerous; each side with a longitudinal convex area, bearing some deep but very irregular punctures, more or less crowded, in an obsolete longitudinal depression along the convex area. *Scutellum* impunctate, sharing the colour of the prothorax. *Elytra* more or less cupreous with a purplish sheen; each elytron has a short scutellar row of a few punctures, a single sutural row and irregularly arranged double rows, the punctures numbering altogether about seventy or eighty; interstices impunctate. *Underside* and legs metallic greenish and nearly impunctate.

Length, 8½ mm.; *breadth*, 5½ mm.

NILGIRI HILLS (Brit. Mus.). Also one example from Ootacamund (Coll. Champion, ex Tomlin).

Type in the British Museum.

Very closely allied to *Ch. krishnu*, Baly, from India, but in that species (1) the pronotum is entirely impunctate and the sides are longitudinally sulcate without punctures, (2) the elytral punctures are closer and more regular.

12. Chrysolina fulvoænea, *Jacoby*.

Chrysomela fulvoænea, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 118.

Apterous. Obscure fulvous, with æneous gloss.

Head broad, depressed in the centre, with a few feebly impressed punctures, more on the clypeus than on other parts; clypeus delimited by two well-impressed lines meeting the faint median longitudinal line in the centre. Antennæ rather short, reaching the base of the pronotum, the five terminal segments

thickened and pubescent: first segment thickened, second, fourth, fifth and sixth each shorter than the third. *Prothorax* transverse, much broader than long, sides straight towards the base, rounded anteriorly, anterior angles blunt and rounded, posterior right angles, anterior margin deeply concave, basal margin straight from the middle to the side; disc with a few fine scattered punctures, the sides very deeply and partly confluently punctate, the punctures extending close to the margins, which latter are not longitudinally convex. *Scutellum* impunctate, smooth, ovate. *Elytra* evenly convex, obscurely fulvous with a strong metallic brassy lustre; each elytron with a short scutellar series of punctures, then a single row of fine punctures placed close to the suture, then follow four irregular double rows of punctures, a few of the latter increasing in size at the sides, the space between the last row of punctures and the margin impunctate and smooth, the other interstices also impunctate. *Underside*: elytral epipleuræ broad and smooth; abdomen pale fulvous with a greenish metallic gloss, and sparsely and finely punctate.

Length, 8 mm.; *breadth*, 5½ mm.

BOMBAY: Poona.

Type in the British Museum.

13. **Chrysolina madrasæ**, *Jacoby*.

Chrysomela madrasæ, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 118.

Winged; very convex. Æneous, with antennæ black.

Head broad, with a few extremely fine punctures; clypeus separated by a well-impressed semicircular line, the longitudinal median line feebly impressed; labrum piceous, margined with flavous. Antennæ passing a little beyond the pronotum; first segment flattened, broad, third segment the longest, the following three segments equal, as long as the second, the seventh, eighth and ninth segments thickened, the terminal two more elongate. *Prothorax* nearly twice as broad as long, lateral margins straight towards the base, rounded anteriorly, front margin widely emarginate, basal margin straight from the middle to the side, anterior angles rounded, basal almost right angles; disc sparingly but rather strongly punctate, the sides covered with deeply impressed, large, confluent punctures. *Scutellum* smooth, impunctate. *Elytra* very convex, broader at the base than the prothorax, very smooth, shining; on each elytron the punctures are rather irregularly approximated in four double rows, those near the suture very indistinctly so, while these latter are much smaller and much more feebly impressed than those on the outer area; a short scutellar row of fine punctures can also be recognized; interstices impunctate. *Underside*: surface impunctate and smooth; legs rather slender.

Length, 8–9 mm.; *breadth*, 5–7 mm.

SOUTHERN INDIA. Madras (Brit. Mus.). Chik-Ballapur, Mysore, 2 examples (*T. V. Campbell*, in Coll. Champion).

Shevaroy, Madras, 4000–5000 ft., viii. 1907, 14–22. x. 1912 (*Fletcher*). Coorg, Pollibetta, 24. x–16. xi. 1915, on *Lantana* (*Fletcher*). Gudalur, Nilgiri Hills 12. ix. 1917 (*Naganath*). Castle Rock, Kanara, 1900 ft.. 8. ix. 1918. Igatpuri, 2000 ft., iii. 1908 (*D. Nowrojee*). Belgaum, 2000 ft., iv. 1908 (*D. Nowrojee*). All the last six records are from the Pusa Collection, which contains 15 specimens in all. This seems to be a predominantly, if not exclusively, South Indian species.

14. **Chrysolina cœlestina**, *Baly*.

Crosita cœlestina, Baly, Trans. Ent. Soc. Lond. 1879, p. 193; Marseul, Abeille, xxi, 1883, p. 104; Weise, Wien. Ent. Zeit. xiii, 1894, p. 154.

Body elongate, subparallel. Upper side shining deep blue or violet, underside black mixed with blue.

Head broad, sparsely but distinctly punctate, punctures on the vertex finer than those on the clypeus, the latter depressed.

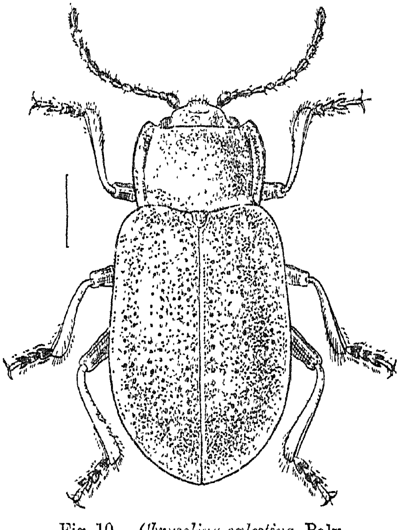


Fig. 10.—*Chrysolina cœlestina*, Baly.

Antennæ slender, less than half the length of the beetle, the six basal segments shining, the next five slightly thickened and opaque; first segment thickened, second small, almost half the length of the third, fourth, fifth and sixth almost equal to each other, each being shorter than the third, the rest of the segments equal to each other, the last being a little more elongate and pointed. *Prothorax* a little broader than long, front margin

shallowly emarginate, the sides gently convex from base to apex, basal margin as a whole slightly sinuate, anterior angles rounded, posterior obtuse; surface gently convex from side to side, uniformly and more or less closely punctate with the same kind of fine punctures throughout; each side has a longitudinal, prominently raised strip which is bounded internally by a deep, sharp channel. *Scutellum* triangular, small, with surface punctate. *Elytra* broader at the base than the prothorax, basal margin thickened; surface confusedly and closely punctate, on each elytron, however, the following rows can be recognized, though the punctuation on the interspaces renders the longitudinal striæ indistinct: a short scutellar row, a sutural series, then four pairs of series; the punctures forming the pairs of series, particularly those on the basal and middle areas, are stronger. *Underside* sparsely and moderately strongly punctate. In the male the tarsal segments of the anterior legs are more dilated than those of the female, and all the tarsi except the posterior pair have the felt covering intact; in the female the anterior tarsal segments are smaller and the felt covering of the segments is imperfect, only represented by a bristly fringe, leaving the central area smooth and shining.

Length, 8–10 mm.; *breadth*, 4–5 mm.

N.W. HIMALAYAS. Peshawar (*E. Y. Watson*). Naini Tal, May–June. Dehra Dun, 29. iii. 22 (*S. N. Chatterjee*). Simla, viii. 1909, 3 examples (Pusa Coll.). W. Almora, Kumaon, U.P., viii. 1909 (*H. G. Champion*). Lansdowne Division, U.P. (*F. W. Champion*). Kangra Valley, 4500 ft., vii–x. 1899 (*Dudgeon*). All the last three records from Coll. Champion. Baly records it also from NORTHERN CHINA and PERSIA.

Type in the British Museum.

In 'Coleopterorum Catalogus,' part 68, p. 82 (1916) Weise places this species as a synonym of *Chrysomela mutabilis*, Hope. I have seen the types of this latter insect and of Baly's *Crosita cœlestina*, which are in the British Museum. Hope's insect is a Galerucid and Baly's is a true *Chrysolina*.

15. Chrysolina cœrulipes, *Harold*.

Chrysomela cœrulipes, Gemminger and Harold, Cat. Col. xi, 1874, p. 3417.

Chrysomela orientalis, Wiedemann (*nec* Olivier), Zool. Mag. i, 3, 1819, p. 179.

Chrysomela pascoei, Maxwell-Lefroy, Indian Insect Life, 1909, p. 360.*

Body elongate, broad, large. Black with æneous sheen, head with a green tinge, underside and scutellum blue.

Head broad, moderately closely and distinctly punctate; clypeus depressed and separated by a deep curved line, the longitudinal

* Maxwell-Lefroy cites this as *C. pascoei*, Jac., but as far as I am able to find out, *pascoei* is a manuscript name proposed not by Jacoby but by Baly.

median line absent. Antennæ short, passing a little distance beyond the base of the pronotum; first segment thickened, second small, shorter than third, fourth and fifth each shorter than third, fifth slightly shorter than fourth, the sixth to the eleventh more thickened and rounded, opaque and pubescent. *Prothorax* broader than long, front margin widely emarginate, sides straight towards the base, rounded anteriorly, basal margin almost straight and slanting towards the front from the middle to the side, anterior angles rounded, posterior almost right angles; surface gently convex in the middle, covered with punctures of various sizes and of varying degrees of fineness and coarseness; each side longitudinally convex from the base to the front, the convex area being bounded internally by an equally long depression containing coarse and confluent punctures. *Scutellum* triangular, smooth and impunctate. *Elytra* broader at the base than the prothorax, more or less parallel-sided; irregularly punctate, for although the tendency towards the formation of rows and the usual scheme of a short scutellar, a sutural and four double rows can be recognized, yet the confused punctures on the interspaces render the regularity of the rows indistinct; the punctures are deeper and larger in some parts and smaller in others. *Underside* very sparsely covered with short silvery hairs, each rising from a puncture.

Length, 10–11 mm.; *breadth*, 6–7 mm.

BENGAL: Berhampore; Pusa, Bihar, 8.iv.1894 (Pusa Coll.); Chapra (*Mackenzie*, Pusa Coll.); Cuttack, Orissa, xi.1905 (*C. S. Misra*, Pusa Coll.). CENTRAL PROVINCES: Balaghat, iii.1907 (Pusa Coll.). *Ch. orientalis*, Wied., was originally described from Bengal; the locality given by Gemminger and Harold for *cœrulipes* is "India or."

Type probably in Copenhagen.

16. **Chrysolina inconstans**, *Wiedemann.*

Chrysomela inconstans, Wiedemann, Zool. Mag. ii, 1, 1823, p. 74.
Chrysomela democratica, Duvivier, Ann. Soc. Ent. Belg. xxxv, 1891, C. r. p. 43.
Chrysomela bonvouloiri, Baly, Ann. Mag. Nat. Hist. (3) x, 1862, p. 23; Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 251.

Body narrowly oblong, moderately convex. Colour bright cupreous or dark bronze, in some cases blue, antennæ black, head, scutellum and legs obscure æneous.

Head irregularly and moderately closely punctate, vertex with a central longitudinal impression, clypeus separated by a deep triangular impression. Antennæ almost half the length of the body: basal segment thickened, second short, third longer than fourth, fourth and fifth equal in length, the five apical segments slightly thickened and opaque, the last segment pointed. *Prothorax* two and a half times as broad as long, the sides gently rounded and narrowed anteriorly, anterior margin broadly concave, basal

margin almost straight from the middle to the side, anterior angles rounded, posterior almost right angles; upper surface smooth, distinctly but sparingly punctate on the disc, the punctures being irregularly crowded; they are deeper, more numerous and in some cases confluent on the lateral area, but they do not reach the margin, thus leaving an impunctate, narrow, longitudinal strip, with hardly any longitudinal depression along its inner side. *Scutellum* semi-ovate, smooth and impunctate. *Elytra* slightly broader than the prothorax, their sides nearly parallel, front margin rounded; surface of each elytron covered with rows of deeply impressed punctures, but on the posterior half many of the rows are obsolete; a short scutellar row, a sutural row and the usual double rows are present; punctures in the rows are irregular, the interspaces

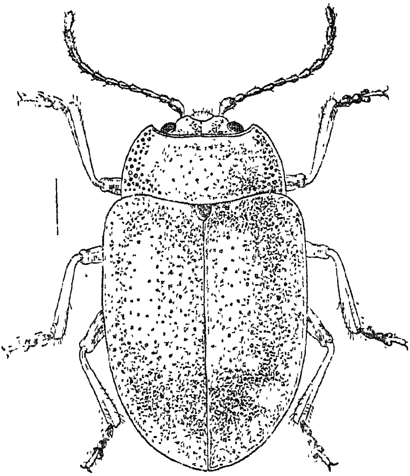


Fig. 11.—*Chrysolina inconstans*, Wied.

remotely and very finely punctate. This species varies in the amount and also in the depth of the punctuation of its surface. *Underside* very sparsely covered with fine punctures, each bearing a small silvery hair.

Length, 7–8 mm.; *breadth*, 5 mm.

INDIA (*Bretingham*, type-locality of *bonvouloiri*; *Ch. inconstans* was described from Bengal). UNITED PROVINCES: Haldwani Division, Kumaon, viii. 1921, 1 example (*H. G. Champion*). BENGAL: Dacca, 12. i. 1906; Comillah, 25. i. 1906 (both Pusa Coll.); Manikganj, Dacca District, 26. x. 1906 (*C. S. Misra*, Pusa Coll.). CEYLON.

Type of *bonvouloiri* in the British Museum; that of *inconstans* presumably in Copenhagen and that of *democratica* presumably in Brussels.

This is a very variable species. Though I have not seen the type of *inconstans*, I cannot, from the description, distinguish it from *bonvouloiri*. Weise (Coll. Cat., part 68, 1916, pp. 61, 76) catalogues the two as distinct species, but places *democratica* as a synonym of *inconstans*, and I follow him in this latter finding.

17. Chrysolina conglomerata, sp. nov.

Body elongate, oval. Head and pronotum blue, with or without a brassy tinge, scutellum sharing the colour of the pronotum, elytra shining brown, underside brown in some parts and blue in others, or in some cases almost entirely dark blue.

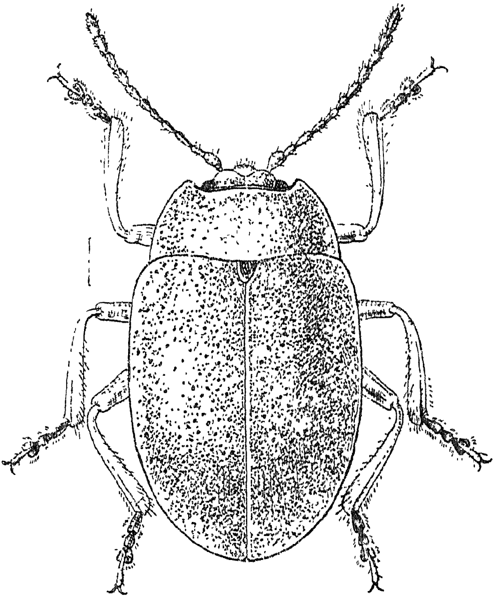


Fig. 12.—*Chrysolina conglomerata*, Maulik.

Head sparsely and finely punctate, clypeus triangular, depressed, median longitudinal line finely, in some cases faintly, impressed. Antennæ slender, less than two-thirds the length of the body; first segment thickened, second shorter than third, fourth, fifth and sixth each shorter than third, the next segment slightly thickened, opaque and pubescent. *Prothorax* broader than long, front margin emarginate, sides almost straight, slightly narrowed anteriorly, basal margin almost straight from the middle to the side, anterior angles acute and rounded, posterior almost right angles; middle area only slightly convex, sides with hardly any longitudinal depression; surface with punctures of various sizes

and depths, sparser on the central area, closer, coarser and confluent at the sides, not reaching the lateral margin, thus leaving a longitudinal impunctate strip which may be slightly convex. *Scutellum* small, ovate, smooth, impunctate. *Elytra* very slightly broader at the base than the prothorax, irregularly punctate, the punctures having a tendency to form rows as is usual in the genus, the interspaces more minutely punctate. *Underside* sparsely and finely punctate.

Length, $6\frac{1}{2}$–$7\frac{1}{2}$ mm.; *breadth*, 4–$4\frac{1}{2}$ mm.

BENGAL: Berhampore (Brit. Mus.); Patna, ii. 1906, on wheat; Chapra (*Mackenzie*); Pusa, Bihar, 3. v. 1907 (*Lefroy*); these records are from 3 examples in the Pusa Collection. UNITED PROVINCES: W. Almora, Kumaon, 2 specimens (*H. G. Champion*).

Type in the British Museum. Described from ten examples.

This may be a variety of *Ch. inconstans*, Wied., but as the ten examples are constant in the general scheme of their coloration, I propose to treat it as a separate species until evidence to the contrary is forthcoming.

18. **Chrysolina karachia**, sp. nov.

Body elongate. Colour blue-black with brassy sheen; underside brown, but not the legs, which share the same colour as the upper side.

Head broad, with a few fine scattered punctures, more numerous in some specimens than in others; clypeus delimited by a well-impressed, transverse, curved line, longitudinal median impression more or less faint. Antennæ nearly half the length of the body; first segment large, thickened, second small, nearly half the length of the third, fourth and fifth each shorter than third, sixth slightly shorter than fifth, the next five segments thickened, opaque and pubescent. *Prothorax* quadrate, slightly broader than long, front margin emarginate, sides straight, narrowed towards the front, basal margin sinuate, anterior angles acute and rounded, posterior almost right angles; upper surface convex in the central area and with fine, scattered punctures, lateral areas longitudinally and very shallowly depressed, the depression containing coarse and confluent punctures; at each side, between this rough area and the extreme edge, is a narrow smooth strip which appears convex when the insect is viewed sideways. *Scutellum* triangular, smooth, impunctate, with apex acute. *Elytra* broader at the base than the prothorax; each elytron is confusedly punctate, the punctures having a tendency to arrange themselves in longitudinal rows, this partial regularity being more marked on the inner half than on the outer, so that a short scutellar row, a sutural row and one or two irregular discal rows can be recognized; the whole surface is uniformly and more or less closely covered with almost the same kind of punctures, but there may be an exception here and there; no tendency to

doubling of the rows can be recognized. *Underside* smooth, impunctate, with scattered, short, silvery hair.

Length, 8 mm.; *breadth*, 5 mm.

SIND: Karachi (*R. T. Bell*).

Type in the British Museum. Described from three examples.

19. **Chrysolina stevensi**, *Baly*.

Chrysomela stevensi, Baly, Ann. Mag. Nat. Hist. (3) x, 1862, p. 23.

Body oblong, moderately convex; bright cupreous, head, scutellum and legs obscure æneous, antennæ black.

Head irregularly but not closely punctate; clypeus nearly occupied by a narrowly ovate, transverse depression, the longitudinal median impression well marked, though not reaching the vertex. Antennæ almost half the length of the body; first segment large and thickened, second shorter than third, fourth and fifth each also shorter than third, from the sixth to the eleventh the segments are thicker, opaque and pubescent. *Prothorax* a little broader than long, front margin deeply concave, sides nearly straight and parallel, slightly sinuate behind the middle, rounded and narrowed in front, anterior angles acute and rounded, posterior almost right angles, basal margin subsinuate from the middle to each side; surface slightly convex, impressed here and there with deep punctures, congregated in irregular rows; sides convex at their outer edge, longitudinally, broadly but obsoletely excavated within, their surface covered with large, irregular, deeply-impressed, confluent punctures. *Scutellum* semi-ovate, subacute, smooth and impunctate. *Elytra* broader than the prothorax, subovate; surface thickly covered with numerous irregular rows of deeply impressed punctures, interspaces somewhat irregularly punctate, indistinctly wrinkled transversely on the outer part of the anterior half of the disc.

Length, 8 mm.

BURMA: Rangoon (Brit. Mus.); Mandalay, 12. v. 1909 and 20. iii. 1918 (Pusa Coll.). BENGAL: Comillah, 25. i. 1906 (Pusa Coll.). ASSAM: Mangaldai District, 1–2. i. 1911 (*S. W. Kemp*): Manipur (*Doherty*, Brit. Mus.).

Type in the British Museum.

20. **Chrysolina bella**, *Jacoby*.

Chrysomela bella, Jac., Entomologist, xxiii, 1890, p. 253; id. Ann. Soc. Ent. Belg. xl, 1896, p. 250.

Chrysomela angelica, Baly (*nec* Reiche), Sec. Yarkand Miss. 1878, p. 29.

Body oblong. Colour bright metallic green generally, but varied with cupreous, the longitudinal bands on the elytra purplish, and the five or six apical antennal segments blackish; the colour varies extremely, but generally the scheme is as follows: on the green background of the pronotum there is a suffusion of purple to such an extent as to delimit a green median longitudinal line,

two green marks extending from the basal margin, one on each side of the middle line, and a band along the basal margin; on the elytron the suture is deep blue-green, then there is a broad purple band bounded longitudinally on each side by green, and blue or green bands alternating with purple, these alternating bands being of varying intensity.

Head sparsely and finely punctate; clypeus bounded on the upper side by a deeply impressed, transversely arched line, which meets a finely impressed vertical median line; a large area at the vertex is convex and so are the areas round the roots of the antennæ. The latter extend a little beyond the middle of the elytra, the five basal segments less hairy, shining, those following more thickened, pubescent, piceous and opaque; first segment long and club-shaped, second, third, fourth and fifth each narrow at the base and dilated at the apex, the second being shorter than the third, as are also the fourth and fifth. *Prothorax* twice as broad as long, front margin widely emarginate, sides gradually rounded anteriorly, anterior angles rounded, posterior almost equal to, or slightly greater than, right angles, basal margin gently sinuate; upper surface uniformly, finely and rather sparsely punctate; on each side is a convex longitudinal strip forming a lateral border, delimited on the inner side by a few irregularly placed, deep and confluent punctures; along the basal margin there are more punctures, some of which are deeper. *Scutellum* triangular, with the apex broadly rounded, surface smooth and impunctate. *Elytra* hardly wider than the base of the prothorax, their surface with rows of fine punctures, but the rows are not regular enough nor well enough separated from one another to enable them to be counted; some of the punctures are fine while others are deeper. *Underside* punctate, lateral areas of the abdominal sternites sometimes rugose; epipleuron of the elytra broad at the base and considerably narrowed behind the middle, but continued right to the apex, inner margin towards the apex bearing a fine fringe of hairs; tarsal claws separated, simple; anterior coxal cavities open.

Length, 8 mm.; *breadth*, 5 mm.

N.W. HIMALAYAS: Chamba; Kashmir; Taru, Peshawar, iv. 1916, 6 examples (*Fletcher*, Pusa Coll.).

Type of *Chrysomela bella* in the British Museum, that of *angelica* Baly (*nec* Reiche) supposed to be in the Indian Museum, Calcutta.

The above description is taken from the specimen from Chamba which was described by Jacoby as *Chrysomela bella*, a species which in his opinion also occurs in China. See above, remarks about the genus *Synerga*, p. 21.

21. **Chrysolina coromandeliana**, sp. nov.

Body elongate-oval. Colour bright metallic blue-green, sometimes the green, and sometimes the blue, predominating; the suture and a fairly broad longitudinal median band on each

elytron deep purple, violet or steel-blue, the shades varying in intensity; antennæ brown beneath, their upper side sharing the general colour of the insect, the five apical segments infused with piceous.

Head smooth, shining, gently convex in the middle, sparsely and finely punctate; clypeus depressed, median longitudinal line faintly impressed. Antennæ long, more than half the length of the body; first segment large, thickened, second small, shorter than third, fourth, fifth and sixth each shorter than third, the next five segments thickened, rounded, opaque and pubescent. *Prothorax* broader than long, front margin emarginate, sides straight, slightly widened anteriorly, basal margin sinuate, anterior angles broadly rounded, posterior more or less nearly equal to right angles; upper surface gently convex from side to side, more or less closely punctate with finer and coarser punctures, on the lateral areas the punctures are coarser and more or less confluent; the pronotum, viewed sideways, shows a longitudinal, more or less convex, smooth strip with much finer punctures, and along the extreme margin is a row of punctures. *Scutellum* small, triangular, smooth, impunctate. *Elytra* slightly broader than prothorax, punctate-striate, the punctures being irregularly arranged, the tendency to doubling of the rows not recognizable, the interspaces more finely punctate; owing to the presence of the interspatial punctures the seriate punctures cannot be accurately counted. *Underside*: abdominal sternites more or less closely punctate.

Length, 6 mm.; *breadth*, 3 mm.

COROMANDEL: Pondicherry (*M. Maindron*). KANARA (a slightly smaller specimen).

Type in the British Museum. Described from three examples.

22. Chrysolina aurata, *Suffrian.*

Chrysomela aurata, Suffr., Linn. Ent. v, 1851, p. 102; Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 251.
Chrysomela separata, Baly, Journ. of Ent. i, 1860, p. 96.
Chrysomela grutii, Baly, Ann. Mag. Nat. Hist. (3) x, 1862, p. 22.

Body oblong, convex. Colour cupreous, at the point of articulation of the appendages red-brown, antennæ and legs blackish-æneous.

Head: clypeus distinctly punctate, ⅄-shaped mark deeply impressed, remaining portion of the surface of the head convex and scarcely punctate. Antennæ scarcely half the length of the body, robust, third segment longer than fourth, second almost equal to fourth. *Prothorax* twice broader than long, sides slightly rounded and ampliate, narrowed in front; there are a few deep, scattered punctures, without any arrangement, on the central area, each lateral area being closely covered with deep, coarse and confluent punctures, giving it a very rugose appearance; the extreme marginal areas are longitudinally slightly convex and

without punctures. *Scutellum* smooth, quadrate-ovate, impunctate. *Elytra* subovate, convex, covered with deep punctures; although there is no regular arrangement a tendency towards formation of longitudinal series may be recognized; interspaces between the punctures smooth. *Underside* shining, finely but remotely punctate.

Length, 8 mm.

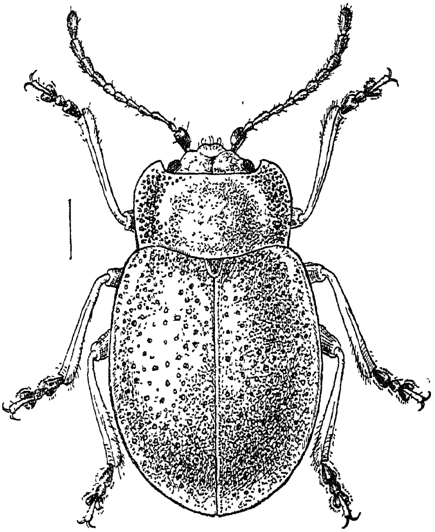


Fig. 13.—*Chrysolina aurata*, Suffr.

NORTHERN INDIA (type-locality of *aurata separata* was originally described from "India" and *grutii* from Rangoon). SIKKIM: Gopaldhara (*H. Stevens*). ASSAM (*W. F. Badgley*); Manipur (*Doherty*); Nongpoh, Khasi Hills, vii. 1907 (*D. Nowrojee*, Pusa Coll.), and Shillong, ix–x. 1918 (*Fletcher*, Pusa Coll.). BENGAL: Rasulpur, iii. 1906 (Pusa Coll.); Pusa, Bihar, 3. v. 1906 (*C. S. Misra*, Pusa Coll.). UNITED PROVINCES: Dehra Dun, 22. vii. 1921 (*S. N. Chatterjee*). BURMA: Carin Hills, xii. 1888 (*L. Fea*).

Types of *separata* and *grutii* in the British Museum.

I have very carefully examined Baly's types of *separata* and *grutii*, and I think the two species are identical; I also believe that they are the same as Suffrian's *aurata*. I have before me more than sixty specimens from various localities. There is a considerable difference amongst individuals in (1) size, (2) punctuation, and (3) coloration, but I am of opinion that the divergences fall within the limits of individual variation.

23. **Chrysolina perforata**, *Redtenbacher*.

Chrysomela perforata, Redtenb. (*nec* Gebl.), in Hugel, Kaschmir, iv, 1848, p. 557.

The following is a translation from the original German description. I cannot identify the insect from the description, and it is given in Weise's Catalogue (p. 98) not in its proper alphabetical order in the genus *Chrysomela*, but among a few names at the end of the genus, as though its identity were uncertain:—

In size it resembles a small example of *Chrysomela banksii* (Europe) and like it is strongly punctate, but the lateral margins of the pronotum are not thickened, and the antennæ, legs and underside are just as metallic as the upper side, but only somewhat darker in colour. The head is shaped like that of *Ch. banksii*. The prothorax is somewhat narrowed posteriorly, its disc sparsely, and the flat lateral margins thickly and deeply, punctate. The scutellum is elongate and triangular. The elytra are somewhat broader than the prothorax, smooth and shining, with large and deep punctures which are finer, sparser and obsolescent on the disc, while on the lateral area are two regular double rows of punctures. The underside is smooth, shining and impunctate.

KASHMIR. Long. 4 lin. [approx. 8 mm.].

24. **Chrysolina pyrrhopyga**, *Stål*.

Chrysomela pyrrhopyga Stål, Öfv. Vet.-Ak. Förh. xlv, 1857, p. 60.

Obscure steel-blue. Elytra and abdomen, with the exception of the basal part, dirty red-brown. Sparsely punctate. Elytra irregularly punctate, the punctures more or less arranged in rows. Length 14, breadth 8 mm. "INDIA ORIENTALIS."

I have not seen the type and therefore cannot express an opinion about this species.

25. **Chrysolina nepalensis**, *Hope*.

Chrysomela nepalensis, Hope, in Gray, Zool. Misc. 1831, p. 30.

Colour blackish-violaceous, with the thorax purplish and the elytra brassy violet and punctate, the punctures large and more or less arranged in rows and black. Long. lin. 4½; lat. 3. NEPAL.

I have not seen the specimen and I cannot express an opinion. The type ought to be in the British Museum, but it cannot be traced. This species, like *Ch. perforata*, Redt., is not given by Weise in its proper alphabetical position in the genus *Chrysomela*, but is placed among a list of evidently doubtful species at the end of the genus (Col. Cat., part 68, 1916, p. 98).

Genus AMBROSTOMA, *Motschulsky*.

Ambrostoma, Motschulsky, Schrenck's Reisen Amurl. ii, 1860, p. 205; Baly, Trans. Ent. Soc. Lond. 1879, p. 192, pl. 2, f. 16; Weise, Arch. Naturg. lxiv, 1898, p. 196.

GENOTYPE, *Ambrostoma quadri-impressum*, Motsch.

This genus includes three species, namely, *quadri-impressum*, Motsch., *fortunei*, Baly, and *mahesa*, Hope. In general build they resemble each other, although the two former are larger in size. Another character common to the three species is the structure of the metasternum, which is bordered on each side only by a deep furrow, the apex being without any furrow, and truncate. Baly laid considerable emphasis on this character alone, and has included the three species in one genus. But *A. mahesa*, Hope, the only one known from within our faunistic limits, differs from the other two in having the second segment of the antennæ shorter than the fourth, while in *quadri-impressum* and *fortunei* the second segment is equal to the fourth. Baly did not, apparently, take notice of this difference.

The combination of metasternal and antennal characters might be considered sufficient to justify the placing of *A. mahesa* in a separate genus, but not having enough material, I do not propose to do this at present. On the other hand *A. mahesa* cannot be put back into the genus *Chrysolina*, because of the form of its metasternum; since in *Chrysolina* the metasternum is bordered by a channel all round, including the apex, and this character is constant throughout the large genus. *A. mahesa* occurs in Nepal and the other two species are found in China and Siberia.

Range, discussed above.

26. Ambrostoma mahesa, *Hope*.

Chrysomela mahesa, Hope, in Gray, Zool. Misc. 1831, p. 30.
Ambrostoma nepalense, Motsch., Schrenck's Reisen Amurl. ii, 1860, p. 228.

Colour metallic bluish-green, underside with a cupreous sheen. Anterior, lateral and posterior margins of the pronotum and three longitudinal bands, one median and two lateral, bright metallic cupreous red; margins of elytra all round, suture, and on each elytron the following pattern: internal to the humerus a short basal longitudinal band meeting a post-basal transverse band from which proceed two longitudinal bands, usually anastomosing (sometimes not) on the apical area, all bright metallic cupreous red, which in darker specimens becomes a steel-blue. The scutellum shares the colour of the suture.

Head broad; eyes situated on the extreme lateral parts, on the inner side of them are the thickened roots of the antennæ, the inter-antennal space being very deeply depressed and impressed with three lines meeting at a point in the middle, one running along the middle to the vertex and the other two obliquely to the

bases of the antennæ; surface sparsely dotted with fine punctures, more crowded at the sides near the eyes, where the surface is depressed. Antennæ passing to a certain extent beyond the pronotum; the five basal segments shining brown stained with darker colour, sparsely covered with fine hairs, the next six segments being more hairy; first segment large, thickened and curved, second more or less globular, third more than twice as long as second, fourth shorter than third but nearly twice as long as second, fifth and sixth almost equal to each other, each very slightly shorter than the fourth; the remaining segments more or less nearly equal and slightly thickened. *Prothorax* about

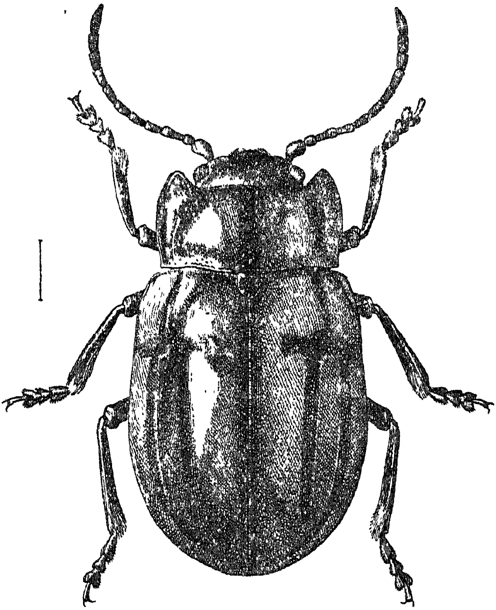


Fig. 14.—*Ambrostoma mahesa*, Hope.

1 mm. broader than long, narrowed towards the base, front margin widely emarginate, the acute and rounded anterior angles being drawn forward to a certain extent, sides sinuate, convex in the middle, basal margin very feebly sinuate on either side, posterior angles almost right angles; upper surface smooth, convex, very finely and sparsely punctate, along the lateral bands the surface is longitudinally depressed, in the depression near the base are a few strong punctures, between this depression and the lateral margin the whole surface is convex. *Scutellum* as broad as long, apex rounded, surface smooth and impunctate. *Elytra* broader than prothorax, convex, smooth, very finely and sparsely punctate;

along the post-basal transverse band the surface is depressed, the depression containing strong punctures. *Underside* smooth, generally impunctate; anterior coxal cavities open; prosternum prominent, convex and triangularly cut at the posterior end; claw-segment of tarsi long, claws simple.

Length, 7–8½ mm.

NEPAL.

Type and five other specimens in the British Museum.

Genus PARALINA, *Baly*.

Paralina, Baly, Trans. Ent. Soc. Lond. (n. s.) v, 1859, p. 155; Chapuis, Gen. Col. x, 1874, pp. 368, 377.

GENOTYPE, *Chrysomela indica*, Hope.

Body elongate. *Head*: antennæ slender, passing much beyond the base of the pronotum, third segment three times longer than

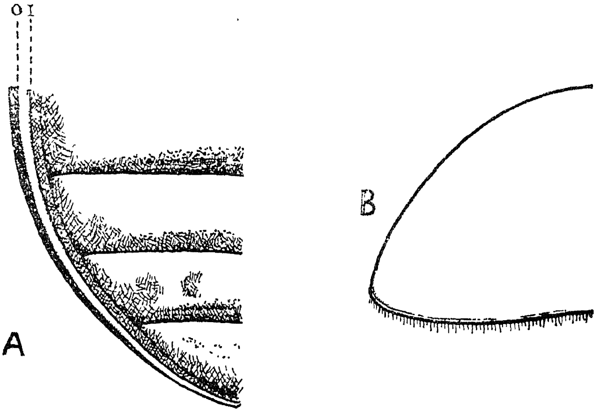


Fig. 15.—*Paralina indica*, Hope. A, one-half of ventral view of abdomen and epipleuron; *o*, outer, *i*, inner margin of epipleuron. B, side view of apex of elytron showing the fringe of cilia arising from the inner margin of the epipleuron and standing in a vertical plane.

the second; clypeus almost as long as broad, while in *Eumela* it is almost a transverse streak; eyes not so narrow as in *Eumela*. The apical segment of maxillary palpi truncate, and almost equal to the preceding segment. *Prothorax* much narrower at the base than the elytra, its surface not very convex. *Elytra*: surface smooth, with four pairs of longitudinal rows of punctures; inner edge of epipleuron bearing a row of cilia-like bristles. *Underside*: anterior end of metasternum bluntly pointed and passing much beyond the intercoxal space between the middle legs; anterior coxal cavities open.

Range. India.

There are only two species in the genus, both from India.

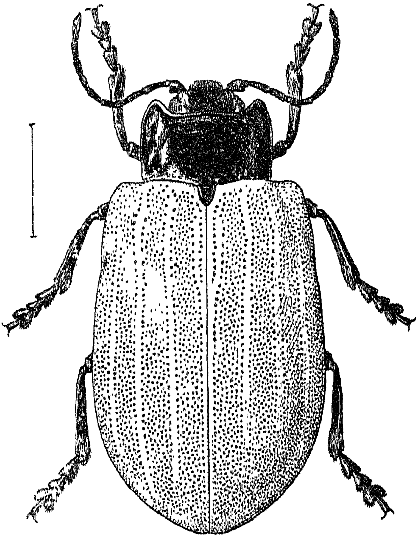
Key to the Species.

Abdominal sternites, or at least the greater part of them, generally metallic green. . .	*P. indica*, Hope, p. 47.
Abdominal sternites, except the first, reddish-brown	*P. fallaciosa*, Stål, p. 48.

27. **Paralina indica,** *Hope.*

Chrysomela indica, Hope, in Gray, Zool. Misc. 1831, p. 29.
Paralina indica, Baly, Trans. Ent. Soc. Lond. (n. s.) v, 1859, p. 155; Duvivier, Ann. Soc. Ent. Belg. xxxv, 1891, C. r. p. 43.
Chrysomela cashmirensis, Redtenbacher, in Hügel, Kaschmir, iv, 1848, p. 558.
Lina elata, Stål, Öfv. Vet.-Ak. Förh. 1857, p. 60.

Colour metallic green with the elytra dark red-brown; the green may be considerably mixed with, or entirely replaced by, blue.



Fig, 16.—*Paralina indica*, Hope.

Head depressed in the middle, the arched impressed line forming the upper boundary of the clypeus, and the median longitudinal line on the forehead, not very deep; surface punctate, with a few bristles on the clypeus and near the eyes; the latter not so narrow as in *Eumela*. Antennæ with first segment thickened, second very small, third elongate, three times as long as second, fourth shorter than third and equal in length to each of the following segments, all the segments slightly covered with hair,

more so on the five apical ones. *Prothorax* quadrate, anterior edge widely emarginate, basal margin undulate, sides straight, rounded at the anterior angles, posterior angles almost right angles; central area of upper surface moderately convex and impunctate, while each side has a longitudinal depressed area which forms a border along the lateral margin and contains a few coarse punctures, these latter may be more in some examples and in others only four or five. *Scutellum* triangular with apex rounded, surface impunctate, colour the same as the prothorax. *Elytra* broader at the base than the prothorax, elongate, smooth, each elytron has the following rows of punctures: (1) one longish scutellar row, (2) one along the sutural margin, (3) four pairs of discal rows, each pair enclosing a smooth space, (4) one row along the extreme outer margin; areas between the paired rows covered with round black spots which simulate punctures. *Underside* in some specimens more shining than the upper side, generally finely punctate, the abdominal segments more strongly so, and sparsely covered with very fine hairs.

In a specimen from W. China the last three abdominal segments are entirely red-brown. In the type-specimen, which is from Nepal, the metallic colour is more blue than green, the abdominal segments are more or less browner at the edges, the last one entirely, and the two preceding ones except in the middle area, brown.

Length, 13·5–14·5 mm.; greatest *breadth*, 8–9 mm.

NEPAL. BHUTAN (*Atkinson*). SIKKIM: Gopaldhara, 1916 (*H. Stevens*). DARJEELING DISTRICT: Sureil, Mungphu, 5000 ft., iv–v. 1917 (*S. W. Kemp*); Pashok, 5000 ft., 26. v–14. vi. 1916 (*F. H. Gravely*). UNITED PROVINCES: W. Almora Division, Kumaon, vii. 1919 (*H. G. Champion*); Naini Tal, ix. 1917 (*H. G. Champion*). BURMA: Haka, Chin Hills, i. viii. 1910 (*F. E. Venning*); Ruby Mines (*Doherty*); Bhamo Hills, 4000 ft., v. 1916 (*F. M. Mackwood*). ASSAM: Naga Hills (*Doherty*); (*W. F. Badgley*); Manipur (*Doherty*). Also occurring in CHINA: Chin-Fu-San (West China), 1908–10 (*W. A. Mow*).

Type in the British Museum.

28. **Paralina fallaciosa**, *Stål.*

Paralina fallaciosa, Stål, Nova Acta Upsal. (3) iv, 1862, p. 5, nota.

Colour green with purplish sheen; abdominal segments, except the first, reddish-brown, their central areas tending to be darker; elytra dark brown, more shining than in *P. indica*.

Head: surface depressed on each side of the median longitudinal line, upper boundary of the clypeus well impressed, and the whole surface sparsely covered with finer and coarser punctures. Antennæ slender, elongate, passing well beyond the pronotum; first segment thick, club-shaped, second very small, third about three times as long as second, fourth shorter than third but almost equal in length to fifth, from the sixth to the last the

segments become slightly stouter and much more hairy. *Prothorax* broader than long, sides almost straight, anterior angles rounded, posterior almost right angles, front margin widely emarginate; upper surface moderately convex, each side having a longitudinal depression, the middle and the basal areas bearing a few scattered punctures, while the lateral depressions are heavily punctate. *Scutellum* sharing the same colour as the pronotum, ovate, with surface impunctate. *Elytra* broader at base than prothorax, widening slightly posteriorly; surface shining, convex; each elytron has the following arrangement of punctures: (1) a long scutellar row which at the commencement forms a pair with the sutural row, (2) the single sutural row which runs throughout the length of the elytron, approaching the sutural ridge very closely on the apical area, (3) four pairs of longitudinal discal rows at equal intervals from each other, the pairs approximating towards each other on the apical surface, and finally (4) a single row of punctures along the extreme outer margin; on the surface between the pairs of rows of punctures there are confused, round, black spots simulating punctures, in some specimens less conspicuous. *Underside* sparsely and finely punctate, each puncture bearing a brownish hair.

This species differs from *P. indica* in the shape of the anterior end of the metasternum, which in *P. fallaciosa* is blunt, shorter, and channelled on each side.

Length, 11 mm.; greatest *breadth*, 6 mm. (type-specimen); a specimen in the British Museum measures 13 mm. by 8 mm.

Type in the Stockholm Museum.

N. INDIA (locality of the type-specimen). SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*). DARJEELING: Pashok, 3500 ft. (*L. C. Hartless*, Ind. Mus. Coll.); Lebong, 8000 ft., vi. 1909 (*Lefroy*, Pusa Coll.). ASSAM: Garo Hills, above Tura, 3500–3900 ft., 15. vii–30. viii. 1917 (*S. Kemp*); Khasi Hills, Nongpoh, vii. 1907 (*D. Nowrojee*, Pusa Coll.).

There is a specimen in the British Museum bearing a label of identification in Baly's handwriting. Stål in describing this species consulted Baly, whose suggestion that it possessed a metasternum of a different structure led Stål to publish the species. Therefore the specimen in the British Museum, examined by Baly, although not the type, has almost the value of a type.

Genus **EUMELA**, *Baly*.

Eumela, Baly, Trans. Ent. Soc. Lond. 1875, p. 23; Weise, Deutsche Ent. Zeitschr. 1902, p. 109.

GENOTYPE, *Chrysomela cyanicollis*, Hope (India).

Body oblong-ovate, convex. *Head* sloping in front; antennæ hardly reaching the base of the pronotum, fairly stout, the contrast in thickness between the six basal segments and the rest of the segments is not so marked as in *Sphærolina*, third segment

about twice as long as second, the four apical segments laterally compressed; eyes narrow and elongate; apical segment of maxillary palpi truncate and much smaller than the preceding. *Prothorax* broader than long, front margin widely emarginate, sides straight, on the upper surface there are no thickened convex areas along the lateral margins. *Elytra* broader than prothorax, but hardly so at the base, generally convex. *Underside*: the anterior end of the metasternal process does not pass beyond the intercoxal space of the middle legs; legs robust; anterior coxal cavities open; inner edge of epipleuron of the elytra has, at least from the middle, a row of fine cilia-like bristles.

Range: India, China, Tonkin.

Key to the Species.

1. Elytra smoothly punctate, not wrinkly or costate	2.
Elytra not smoothly punctate, either with wrinkly punctures or costate ..	3.
2. Elytra light yellow-brown to dark red-brown, without any metallic shimmer.	*E. cyanicollis*, Hope, p. 50.
Elytra generally red-brown with purple or greenish shimmer	*E. transversicollis*, sp. n., [p. 52.
3. Inner half of elytral surface impressed with elongate wrinkle-like punctures, outer and apical areas with much finer punctures	*E. assamensis*, Weise, p. 52.
Elytral surface with deeper impressed punctures giving it a rough appearance, and with two more or less raised interstices	*E. balyi*, Jac., p. 53.

29. Eumela cyanicollis *Hope.*

Chrysomela cyanicollis, Hope, in Gray, Zool. Misc. 1831, p. 29.
Eumela cyanicollis, Duvivier, Ann. Soc. Ent. Belg. xxxv, 1891, C. r. p. 43; Weise, Deutsche Ent. Zeitschr. 1902, p. 110.

Body oblong-ovate, convex. Colour generally metallic blue, elytra and underside of abdominal segments (except the first) light yellowish-brown to dark brownish-red; in one case the metallic blue colour is replaced by green.

Head large, broad, and (viewed from the front) vertical in position; clypeus bounded on the upper side by a deeply impressed curved line, from the middle of which runs a finely impressed longitudinal median line, while there may be a shallow depression on the area just at the top of the clypeus; surface generally finely and more or less sparsely punctate, round the eyes the punctures become thicker, as well as on the clypeus; eyes very narrow, elongate and obliquely placed. First segment of antennæ very stout and broad, second very small and rounded, third more than twice as long as second and longer than fourth, fourth very slightly longer than fifth, fifth and sixth almost equal to each

other in length, the four apical segments slightly stouter and more or less flattened laterally, the six basal segments sparsely, the rest thickly, covered with fine golden-brown bristles; apical segments of maxillary and labial palpi proportionately short and blunt. *Prothorax* much broader than long, very slightly narrowed posteriorly, sides straight, anterior angles rounded, posterior angles obtuse, front border widely emarginate, base almost straight; upper surface widely convex, smooth, and more or less sparsely covered with coarser and finer punctures. *Scutellum* broader than long, anterior margin straight, posterior rounded, and with a well marked border, surface sparsely covered with finer and coarser punctures. *Elytra* almost as broad at base as prothorax, slightly

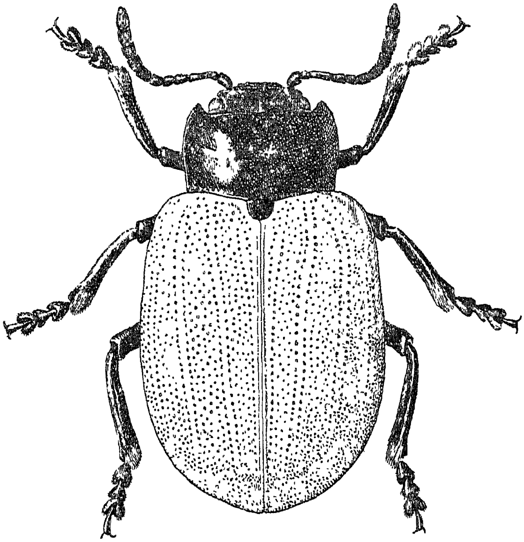


Fig. 17.—*Eumela cyanicollis*, Hope.

broader behind; convex; upper surface confusedly punctate, but there is still a tendency towards formation of longitudinal rows; on each elytron there are three longitudinal impunctate stripes, each bounded by rows of punctures, likewise there is a row along the sutural border, but a scutellar row cannot be distinguished, though the scutellar area bears some punctures. *Underside* punctate, abdominal segments covered with brown bristles, each arising from a puncture; anterior coxal cavities not closed; anterior process of the metasternum not reaching beyond the middle coxal cavities.

Length, 14–15 mm.; greatest *breadth*, 9–10 mm.

SIKKIM: Gopaldhara (*Stevens*); Darjeeling, v. 1912 (Indian Museum). ASSAM: Saikhoa, 26. v. 1920, 1 specimen (*Fletcher*,

Pusa Coll.); Patkai Mts. (*Doherty*); Manipur (*Doherty*). BURMA: Karen Mts., 900–1100 m., v–xii. 1888 (*L. Fea*). CEYLON: Peradeniya, Matale, 1919 (*N. K. Jardine*).

Type in the Hope Museum, Oxford.

30. Eumela transversicollis, sp. nov.

Head, prothorax, antennæ, underside, and legs bright metallic green; elytra red-brown with purple or greenish shimmer.

Head almost impunctate or with a few very fine punctures; viewed from the front almost vertical, with a depression in the middle; clypeus bounded on the upper side by a strongly impressed curved transverse line, the vertical line is not visible. The structure and the proportions of the antennal segments are as described in the preceding species. *Prothorax* broader than long, much more so than in *E. cyanicollis*; surface convex, almost impunctate except for a few fine punctures and some coarser ones at the basal and lateral borders, anterior border widely emarginate, sides undulated, anterior angles rounded, posterior obtuse. *Scutellum* with base straight, posterior end rounded but more nearly triangular than in *E. cyanicollis*, surface impunctate. *Elytra*: the sculpture of the surface is exactly as in the type species of the genus. *Underside* generally punctate, the abdominal segments more closely so and without bristles. In *E. cyanicollis* the antennal and abdominal segments bear bristles, in this species they are without them.

Length, 10–12 mm.; greatest *breadth*, 7–9 mm.

NILGIRI HILLS: (*A. K. Weld-Downing*); (*H. L. Andrewes*); Naduvatum, 7000 ft., v. 1904 (*W. Rawson*, Pusa Coll.).

Type in the British Museum.

Described from two examples, one bearing Jacoby's manuscript name, which I have adopted here, and the other labelled *coromandeliana*, Dej.

31. Eumela assamensis, *Weise*.

Eumela assamensis, Weise, Deutsche Ent. Zeitschr. 1902, p. 110.

Body metallic green with light golden shimmer. The transverse impression bordering the clypeus and the median longitudinal impression on the forehead prominently sharp. *Pronotum* moderately strongly punctate with a groove on each side. *Elytra* dark red-brown, the inner half impressed with strong and slightly elongated wrinkle-like punctures, the outer and the apical areas with much finer punctures. The first abdominal segment green in the middle.

Length, 13–14·5 mm.

ASSAM.

Type probably in the Berlin Entomological Museum.

I have not seen this insect but, judging from the description, the sculpturing of the elytra is characteristic.

32. **Eumela balyi**, *Jacoby*.

Chrysomela balyi, Jac., Entomologist, xxvi, 1893, Suppl. p. 106.

Ovate, strongly convex, greenish æneous, the apical segments of the antennæ black; elytra reddish-fulvous with a purplish sheen.

Head with a very few fine punctures near the eyes, labrum and mandibles black, median vertical line absent. Antennæ very short, not extending beyond the base of the thorax, basal segment metallic green, the five apical segments strongly dilated, broader than long, and black. *Prothorax* nearly twice as broad as long, sides and anterior margin at the middle straight, anterior angles rounded and but slightly produced; surface brilliant metallic greenish, with a few deep punctures and a short transverse fovea at each side, sides without any longitudinal depression; the degree of punctuation of the surface varies. *Scutellum* metallic green, triangular with apex broadly rounded, surface smooth. *Elytra* reddish-brown, gradually raised towards the middle, from there to the apex rather strongly deflexed, with a short transverse depression below the shoulders, which are convex and impunctate; surface strongly punctured, the punctures deeply impressed (giving a rough appearance), arranged in irregular longitudinal rows near the suture and at the sides, more irregularly on the disc, and more finely at the apex than anteriorly; the interstices smooth, two of them elevated, this being more marked in some specimens than in others. *Underside* and legs metallic green; prosternum longitudinally convex, metasternum very slightly tuberculate in front, abdominal segments finely punctured.

I have before me eleven specimens, all from South India; they vary in size, in the punctuation of the pronotum and in the degree of elevation of the interstices; in the type-specimen this latter is not very pronounced.

Length, 11–12 mm.

South India: Shembaganur, Palni Hills, 6000 ft. (Pusa Coll.); Kodaikanal, 1 specimen (*T. V. Campbell*, Coll. Champion); Kodaikanal, 6700–7000 ft., v. to ix. 1922 (*Mrs. Kemp*). Originally described from Madras.

Type in British Museum.

I do not think that this species should be included in *Chrysomela* (=*Chrysolina*), as was done by Jacoby.

Genus **SPHÆROLINA**, *Baly*.

Sphærolina, Baly, Trans. Ent. Soc. Lond. 1871, p. 400; Chapuis, Gen. Col. x, 1874, pp. 368, 378.

Genotype: *Lina rajah*, Guérin.

Body rounded-ovate, semi-globular, more convex than either *Paralina* or *Eumela*. *Head* as broad as the emargination of the front border of the pronotum; eyes narrow and obliquely placed, but not so narrow as in *Eumela*. Antennæ short, hardly reaching the base of the pronotum, five apical segments much more dilated

than the basal segments and compressed; in presenting this strong contrast between the thickness of the six basal and the five apical segments, this genus differs from *Paralina* and *Eumela*. The apical segment of the maxillary palpi is truncate, and not much smaller than the preceding segment. *Prothorax* much broader than long. *Elytra* broader at the base than the prothorax, but becoming much wider behind. *Underside*: the anterior end of the metasternal process is not pointed and hardly goes beyond the intercoxal space between the middle legs. The anterior coxal cavities are open behind. The inner edge of the epipleuron of the elytra has a row of fine cilia-like bristles.

Baly distinguished this genus from *Chrysomela* (= *Chrysolina*) by the short antennæ and the difference in the form of the prothorax. Two species have been described.

Range. India.

Key to the Species.

Pronotum blue-black to green, elytra dark brown generally with a metallic sheen	*S. rajah*, Guér., p. 54.
Pronotum bright metallic blue, elytra dark brown without a metallic sheen.	*S. templetoni*, Baly, p. 55.

33. **Sphærolina rajah**, *Guérin.*

Chrysomela rajah, Guér., Rev. Zool. 1840, p. 41; id., Voy. Deless. ii, Zool. 1843, p. 64.

Body strongly convex. The colour of the elytra is generally shining rich brown, the rest of the body being deep blue-black; in some cases the elytra are much darker brown, the margins and suture retaining the lighter brown colour, and sometimes they have a greenish-purplish sheen, the rest of the body then tending to green rather than blue-black.

Head impunctate except for a few scattered punctures, particularly near the eyes, and with a few scattered hairs; clypeus well marked off, the central median longitudinal line, which meets the upper boundary of the clypeus, being faint. First segment of antennæ large, club-shaped, second small, third about twice as long as second, fourth almost equal to third, fifth slightly shorter than fourth, sixth shorter than fifth, the next five segments forming a thick club, more hairy and less shining than the basal segments. *Prothorax* twice as broad as long, front margin widely emarginate, sides very slightly widened anteriorly, anterior angles rounded, posterior almost right angles; upper surface gently convex, with hardly any punctures in the middle area (in some specimens more than in others), lateral areas and basal marginal area more or less covered with coarser and finer punctures; in some specimens the upper surface is impunctate but for a few scattered punctures. *Scutellum* triangular with apex rounded; surface smooth, impunctate, the colour always that of the pronotum. *Elytra* a little broader at the base than the base of

the pronotum, very convex; surface confusedly covered with punctures which show some tendency towards an arrangement in longitudinal rows; on each elytron are three longitudinal smooth stripes (and sometimes a trace of a fourth) bounded on either side

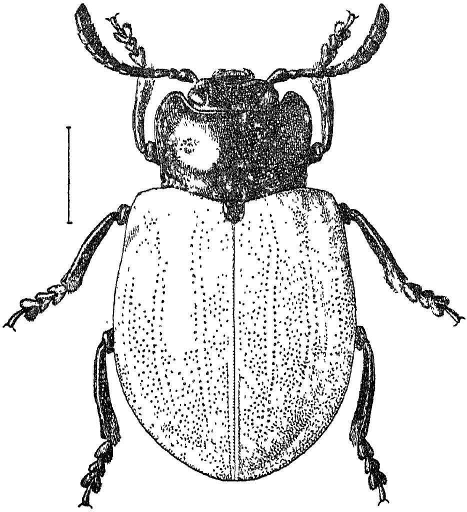


Fig. 18.—*Sphærolina rajah*, Guérin.

by a row of punctures. *Underside* closely punctate, each puncture bearing a fine hair; structure of the metasternum as described under the genus.

Length, 11–13 mm.; greatest *breadth*, 9–10·5 mm.

NILGIRI HILLS (*G. F. Hampson*). Originally described from the plateau of the Nilgiris.

The location of the *type* is unknown to me.

34. Sphærolina templetoni, *Baly*.

Lina templetoni, Baly, Ann. Mag. Nat. Hist. (3) iv, 1859, p. 60.
Sphærolina templetoni, Fairmaire, Ann. Soc. Ent. France, (6) vi, 1886, p. 356; Weise, Deutsche Ent. Zeitschr. 1902, p. 110 (nota).

Head, prothorax, antennæ (except the apical club, which is piceous), underside and legs, bright metallic blue; elytra yellow-brown to dark brown, without metallic sheen.

Head finely and sparsely punctate, surface above the clypeus uneven; clypeus bounded on the upper side by a faintly impressed line, the vertical longitudinal line is also faint. Antennæ: structure and relative lengths of segments as stated in the generic description. *Prothorax* broader than long, sides slightly widened anteriorly, anterior angles widely rounded, posterior almost right angles, front margin widely emarginate; surface evenly convex,

hardly punctate except for a few punctures in the middle area and more on the lateral area, at the posterior angles, and along the basal margin. *Scutellum* triangular with apex rounded, surface smooth and impunctate; it always shares the colour of the prothorax. *Elytra* a little broader at the base than the prothorax, widened posteriorly, convex; surface confusedly punctate, on each elytron there are four pairs of longitudinal rows of punctures, each pair of rows enclosing a smooth space. In the type-specimen, which is of a lighter brown, this arrangement is not very prominent although clearly visible. At the end of his description Baly remarks "my specimen has the elytra stained with numerous small rufo-piceous points irregularly arranged in longitudinal striæ; I think these are only due to immersion of the insect in spirit." This observation is not correct, probably because Baly saw the insect under a low-power lens; these spots are true impressed punctures, each of which is surrounded by a circular dark area. *Underside* closely punctate, hairy: the last two visible segments of the abdomen in the type-specimen brownish.

Length, 11 mm.; greatest *breadth*, 9 mm.

CEYLON (type-locality).

Type in the British Museum.

Genus **AGASTA**, *Hope*.

Agasta, Hope, Col. Man. iii, 1840, p. 177; Baly, Trans. Ent. Soc. Lond. (3) iv, 2, 1867, p. 298; Chapuis, Gen. Col. v, 1874, pp. 367, 405.

GENOTYPE, *Agasta formosa*, Hope.

Body oblong-ovate, moderately convex, the prothorax much narrower than the base of the elytra. Antennæ passing slightly beyond the pronotum, slender. *Elytra* punctate-striate at the base, a short scutellar row of punctures is also present, and the rows of punctures along the suture are entire throughout, but on the rest of the surface the punctures are confused. The bilobed segment of the *tarsi* is not entire, that is to say, the lobes are separate and not fused: in most CHRYSOMELINÆ they are fused, the anterior border being emarginate and the upper surface hollowed for the reception of the claw-segment, which arises from the base of the bilobed segment; see footnote on p. 4.

Range. This genus contains only one species, which Hope first described from China, but subsequently it has been taken in Java, Siam and India.

35. **Agasta formosa**, *Hope*.

Agasta formosa, Hope, Col. Man. iii, 1840, p. 177, pl. 2, fig. 3; Baly, Trans. Ent. Soc. Lond. (3) iv, 2, 1867, p. 298; Chapuis, Gen. Col., Atlas, pl. 123, fig. 4; Baly, Cist. Ent. ii, 1879, p. 436; Duvivier, Ann. Soc. Ent. Belg. xxxv, 1891, C. r. p. 44.

The ground-colour varies from pale yellow-brown to dark

brown; the following blue-black spots and patches of different sizes and shapes are observable: (1) a spot on the depression in the centre of the upper surface of the head, (2) two large semi-lunar patches opposing each other and three other small spots—one central and two lateral—on the pronotum, (3) as a rule the entire upper surface of the scutellum but sometimes with the exception of a tiny area, (4) eight large patches on each elytron; described in detail below and including a small one just posterior to the humeral angle, this spot being partly on the upper surface and partly on the epipleuron, (5) on the underside, the lateral pieces of the mesosternum, the whole of the metasternum and a stripe on each abdominal sternite; this stripe is often broken into three portions, one median and two lateral, and in some specimens

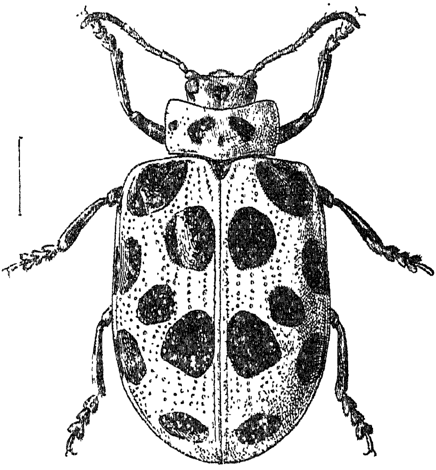


Fig. 19.—*Agasta formosa*, Hope.

this gives rise to three longitudinal series of patches. The whole body is moderately shiny and free from hairs.

Head with a depression in the centre, in some cases this is more pronounced than in others, and sometimes it takes a triangular shape; the clypeus is narrow, triangular and well marked off by strongly impressed lines, the latter meeting a fine vertical median impression; the surface is scarcely punctate, in some specimens more so than in others. First segment of antennæ thickened and rounded, second elongate, shorter than third but almost equal in length to the fourth or fifth, the third is slender and is the longest segment, from the sixth to the last the segments are thickened and darkened in colour towards the end. *Prothorax* much narrower than elytra, front margin widely emarginate, sides almost straight, slightly narrowed towards the front, anterior

angles rounded, posterior almost right angles; on the upper surface the central area inclosed between the semilunar patches is almost impunctate or very finely punctate, the lateral areas are more coarsely and thickly punctate. *Scutellum* triangular, smooth and impunctate. *Elytra* at the base about twice as broad as the width of the prothorax; disposition of the blue-black patches on each elytron as follows: on the basal area two patches, the first covering the humerus and a little area round it and the second (the largest patch on the elytron) placed near the suture obliquely behind the first; on the middle area, lying in a similar oblique line, there are three patches almost of equal size; finally, on the apical area there are two more, situated in a third oblique line, one on the lateral margin and the other near the suture, the former overflowing the margin and staining a little portion of the epipleuron; below the humerus there is a patch which stains partly the epipleuron and partly the elytral margin, and sometimes this patch is confluent with adjoining patch of the second oblique line. The sculpturing is as follows: on each elytron (1) a short scutellar row of punctures, (2) one row along the suture, (3) another row parallel to the sutural row, (4) along the lateral margin two rows running parallel the whole length, the interstice between them being slightly convexly raised; rest of the surface confusedly punctate, except on the basal area where an arrangement in rows is observable. *Underside* more shining than the upper, generally impunctate; the disposition of the blue-black spots and patches has been touched on in the short colour diagnosis given above.

Length, 10–11½ mm.

EASTERN HIMALAYAS: Darjeeling District, Sitong near Mungphu, 3800–4000 ft., 2-5. vii. 1918 (*S. W. Kemp*, Ind. Mus. Coll.); Singla, 1500 ft., vii. 1912 (Ind. Mus.); Pashok, 4500 ft., 26. v–14. vi. 1916 (*F. H. Gravely*, Ind. Mus.). BURMA: Ruby Mines and Karen Hills (*Doherty*, Brit. Mus.). ASSAM: Sadiya (*Doherty*, Brit. Mus.); Khasi Hills, Nongpoh (Brit. Mus.); same locality, ix. 1906 and vii. 1907, 10 specimens (Pusa Coll.); Sylhet (*Bowring*, Brit. Mus.): above Tura, Garo Hills, 3500–3900 ft., vii–ix. 1917 (*Mr. & Mrs. Kemp*). JAVA (*Bowring*, Brit. Mus.). SIAM (Brit. Mus.).

The location of the *type* is unknown to me.

Variation: in some specimens the underside is without any markings. In the two specimens from Assam in the collection of the British Museum most of the spots and patches on the upperside have disappeared except the humeral, subhumeral and one apical, on the other hand the patch on the head is much enlarged and the underside also is almost suffused with blue-black. Sometimes the upper surface of the head is entirely blue-black, and the patches on the pronotum have all fused, covering a large area.

Genus PHAEDON, *Latreille.*

Phaedon, Latr., in Cuvier, Règne Anim. ed. 2, v, 1829, p. 151; Redt., Gatt. deutsch. Käferfauna, 1845, p. 116; Chapuis, Gen. Col. x, 1874, pp. 367, 371; Weise, Ins. Deutschl. vi, 1884, p. 538; Fowler, Col. Brit. Isl. iv, 1890, p. 314.

GENOTYPE, *Chrysomela armoraciæ*, L. (Europe, N. Asia, N. America).

Body short, oval and convex. Prothorax narrowed anteriorly. Elytra with distinct rows of punctures at regular intervals. Tibiæ not produced into a tooth at the apex. The third bilobed segment of the tarsus divided, not entire.

This genus contains thirty-two species according to Weise, Col. Cat. part 68, p. 118 (Berlin, 1916), having a wide range in North and South America, and also occurring in Europe, Japan, and Asia to a limited extent. From within our faunistic limits only one species has been reported.

Range, discussed above.

36. Phaedon assamensis, *Jacoby.*

Phaedon assamensis Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 120.

Body oblong, nearly parallel-sided, narrowed anteriorly. Winged. Colour dark blue or greenish.

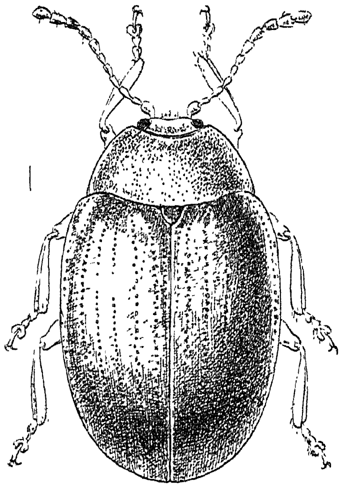


Fig. 20.—*Phaedon assamensis*, Jac.

Head rather closely punctate; the clypeus delimited by a triangular impression, its surface being punctate in the same way as the rest of the head. Antennæ black, the six basal segments stained with piceous at the apex; first segment large, thickened and club-shaped, second small, third almost twice as long as

second, fourth shorter than third, fifth and sixth each almost equal in length to fourth, the last five segments forming a dilated club, opaque and covered with hair. *Prothorax* almost twice as broad as long, narrowed anteriorly, sides straight, anterior angles rounded, posterior almost right angles; upper surface rather closely covered with punctures, lateral margins abruptly bent down, more finely punctate: there is no ridge which, as Jacoby states, can be "seen in a certain light"; that is only an optical illusion. *Scutellum* ovate, smooth, impunctate. *Elytra* without distinct shoulders, almost as broad as the thorax at the base; on each elytron there are eleven rows of punctures, including a long scutellar row which terminates at about the middle of the elytron, and one along the extreme margin lying in an impressed line; it is difficult to see this last row unless it is looked at when the insect lies on its back; all the rows converge on the apical surface; interspaces between the rows smooth and flat. *Underside*: epipleuron closely punctate, continuing to the apex though narrowing; the whole surface is closely punctate.

Length, 4 mm.

ASSAM (Brit. Mus.). UNITED PROVINCES: W. Almora, Kumaon, one specimen (*H. G. Champion*).

Type in the British Museum. The Kumaon example is slightly smaller than the Assam specimens.

Genus **PLAGIODERA**, *Redtenbacher*.

Plagiodera, Redt., Gatt. deutsch. Käferf. 1845, p. 116; Chevr., Dict. Univ. x, 1847, p. 233; Chapuis, Gen. Col. x, 1874, pp. 369, 374; Weise, Arch. Naturg. lxiv, 1898, p. 211.

GENOTYPE, *Chrysomela versicolora*, Laicharting [*armoraciæ*, Redt. *nec* L.].

Convex beetles; colour brown, blue or green, always with a metallic shimmer. *Head* generally broad, its width being sufficient to allow it to fit into the emargination of the front edge of the pronotum; the upper surface is more or less punctate and with a λ-shaped impression which varies in different species. The antennæ are generally short, and there is always a difference in structure and colour between the five or six basal segments and the rest; the relative lengths of the basal segments vary. *Prothorax* always much broader than long, the sides slightly oblique, the front margin widely emarginate, the basal margin varying in its curvature; anterior and posterior corners either rounded or angulate; upper surface always gently convex from side to side and punctate. *Scutellum* always triangular in varying degree. *Elytra* at base almost as broad as, or slightly broader than, prothorax; upper surface convex (at the humerus there is always a convex elevation of varying degree of prominence) and punctate throughout; the punctures, although lacking in any definite arrangement, may in some cases show a linear disposition along the suture and on the lateral margin. The colour is generally uniform, in some cases there is a border of light colour along the margins and the

suture; the marginal band is often slightly convex and delineated on the inner side by a row of punctures. The underside is very often smooth and shining and different in colour from the upper side, but sometimes the two sides may be concolorous. Anterior coxal cavities open. Epipleuron of the elytra broad, more or less horizontal, broader at the base and narrowing towards the apex. The claw-segment of the tarsus projects much beyond the bilobed segment, the claws being simple; in the bilobed segment the lobes are separate, not fused (see p. 4).

Range. Throughout the world, but more species have been recorded from North, Central and South America (especially the two latter regions) than from anywhere else.

Key to the Species.

1. Each elytron with a broad, bifurcating, usually metallic green, band and a sutural stripe of the same colour	*P. divisa*, Jac., p. 66.
Elytra with no such band or sutural stripe	2.
2. Body oblong or oblong-ovate	3.
Body rounded and more convex	4.
3. Colour entirely brown, the elytra having a metallic greenish shimmer	*P. marginipennis*, Jac., [p. 62.
Colour of elytra greenish-bronze, rest of the body dark brown or its paler shades.	*P. miniaticollis*, Hope, [p. 63.
4. Disc of elytron with alternating metallic bands of green and purple	*P. micantipennis*, Stål, [p. 64.
Disc of elytron with no such alternating bands	5.
5. Ground-colour reddish-brown, disc of elytron with bronzy reflections	*P. rufescens*, Gyll., p. 64.
Ground-colour blue or green, underside blue-black	*P. versicolora*, Laich., [p. 61.

P. transversa (Ol.) is not included in the key for reasons explained on p. 67.

37. Plagiodera versicolora, *Laicharting.*

Chrysomela versicolora, Laichart., Verz. Tirol. Ins. i, 1781, p. 148.
Plagiodera versicolora, Baly, Cist. Ent. ii, Sept. 1878, p. 375.*

Body ovate. Colour of upper side metallic greenish-blue, underside blue-black; the greenish-blue colour varies considerably in shade, in some examples it may have a distinct violaceous tinge. The five basal segments of the antennæ yellow-brown, the rest blackish.

Head broad with vertex slightly depressed and surface smooth and finely punctate; eyes prominent. Antennæ passing a little distance beyond the base of the pronotum; first segment

* For other references to bibliography see Weise, 'Coleopterorum Catalogus,' part 68, Berlin, 1916, pp. 136, 137. This species has a wide distribution in Europe, North Africa and Asia, and hence have originated a number of synonyms and a large amount of literature.

large and thickened, second shorter but thicker than third, the latter slightly longer or almost equal to the fourth, fifth shorter than fourth, sixth shorter than fifth, from the seventh to the last the segments are thickened, and more hairy. *Prothorax* much broader than long, broad at base and a little narrowed anteriorly, anterior and posterior margins widely arched, sides gently convex, anterior and posterior angles rounded; upper surface gently convex from side to side, finely and more or less closely punctate. *Scutellum* triangular with apex acute and surface smooth and impunctate. *Elytra* broader at base than the prothorax, humeral angles widely rounded, humerus prominent and convex, posterior to it the surface is depressed: the whole surface finely and more or less closely punctate, the punctures tending to form longitudinal rows, along the margin is a longitudinal convex stripe containing fewer punctures. *Underside*: abdominal sternites punctate, transversely strigose in the middle; epipleura of the elytra broader and deeply concave at the base, narrowing towards the apex; the bilobed segment of the tarsus is longitudinally split in the middle, the claw-segment extends considerably beyond the bilobed segment, the claws are simple.

Length, 4 mm.

PUNJAB: Jhelum Valley (*Dr. F. Stoliczka*, Forsyth's Expedition to Kashgar in 1873–74). NORTH-WEST FRONTIER PROVINCE: Abbottabad, 10. vi. 1916, 8 specimens, on willow leaves (*Fletcher*, Pusa Coll.); Parachinar, Kurram Valley (*F. W. Champion*). UNITED PROVINCES: W. Almora, 5. viii. 1916 (*H. G. Champion*); West Bhatkot, Kumaon, 4000 ft., v. 1920, on *Salix* (*H. G. Champion*); the specimens collected by F. W. and H. G. Champion number 18 in all.

Described originally from EUROPE; also recorded from NORTH AFRICA, SIBERIA and JAPAN.

38. **Plagiodera marginipennis**, *Jacoby*.

Plagiodera marginipennis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 188; Weise, Arch. Naturg. lxiv, 1898, p. 212.

Body oblong. Colour entirely brown with the eyes black; the elytra may have a metallic greenish shimmer.

Head broad; eyes convex; upper surface punctate with a depression in the middle, but without any impressed median vertical line; clypeus well marked off on its upper side by an impressed arched line. Antennæ short, passing a little beyond the base of the pronotum; first segment thickened, club-shaped, second small, nearly half the length of the third and also shorter than the fourth, fifth a little thicker than fourth and almost equal to it in length, from the sixth to eleventh the segments are thickened, pubescent, and piceous in colour; the five basal segments shining, smooth, and with a few scattered stiff hairs. *Prothorax* almost twice as broad as long; front margin widely emarginate to fit the breadth of the head; sides gently convex; anterior angles rounded, posterior almost right angles; basal margin gently

bisinuate; upper surface closely punctate. *Scutellum* triangular with apex rounded and surface smooth and impunctate. *Elytra* broader than prothorax; the humerus strongly raised into a convex knob; each elytron has a raised, slightly convex border along the outer margin, the border being as broad at the base as at the apex, bounded on the inner side by a row of punctures, and having a longitudinal row along the middle of its surface; each elytron is covered with punctures which vary in size and depth, they are thinner near the sutural surface than elsewhere, one or two irregular rows along the suture can be distinguished, otherwise they are confused. *Underside* smooth, shining and almost impunctate.

Length, 9½ mm.

TENASSERIM: Plapoo, iv. 1887. BURMA: Karen Hills, Cheba, xii. 1888 (*L. Fea*).

Type in the Genoa Museum.

The original description was drawn up by Jacoby from an unique example (which, Dr. Gestro informs me, is in the Genoa Museum), and the locality was stated to be Plapoo, Tenasserim, April 1887; Tenasserim is also the locality cited by Weise, Col. Cat., part 68, p. 135. But on a specimen marked "type" and bearing a label of identification in Jacoby's handwriting, in the British Museum collection, the locality given is "Carin Cheba, xii. 1888 (*L. Fea*)"; this specimen is not really the type, nor even a cotype or paratype, as it was not used by Jacoby in making his original description.

39. **Plagiodera miniaticollis**, *Hope*.

Chrysomela miniaticollis, Hope, in Gray, Zool. Misc. 1831, p. 30.

Body oblong-ovate, convex, narrowed anteriorly. Elytra greenish-bronze, the rest of the body dark, or sometimes paler, brown.

Head quadrate, upper surface slightly depressed in the middle, covered with coarser and finer punctures and with a λ in the middle. Antennæ robust, just passing beyond the base of the pronotum; first segment club-shaped, second shorter than third and almost equal in length to fourth, these four segments shining brown and smooth except for a few stiff hairs, fifth stouter and more bristly, the last six segments form a thickened club, more hairy, and piceous or black in colour. *Prothorax* almost twice as broad as long, anterior margin narrower than base, widely emarginate to fit the width of the head, the edge of the emargination thinner in the middle and thickened at the sides; anterior angles rounded, posterior almost right angles, sides very gently convex and slightly oblique, basal margin rounded in the middle and from there almost straight to the posterior lateral angles; surface gently convex, sloping from the base to the front, smooth, and thickly covered with punctures. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* broader than the

prothorax, smooth and shining; humerus raised into a convex knob; each elytron is closely covered with punctures of varying sizes and depths, these punctures having a tendency to form irregular longitudinal lines. *Underside* smooth, shining, uniformly brown and impunctate.

Length, 7 mm.

SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*). Originally described from NEPAL.

Type in the British Museum.

40. **Plagiodera micantipennis**, *Stål.*

Plagiodera micantipennis, Stål, Öfv. Vet.-Ak. Förh. xv, 1858, p. 251.

Body strongly convex. General colour of the elytra greenish-bronze with purple reflections which are generally visible as longitudinal bands alternating with green according to the angle of incidence; a lateral band along the elytral margin, the underside and the rest of the body, reddish-brown.

Head: upper surface punctate, slightly depressed in the middle, with λ-mark, of which the vertical longitudinal line is not strongly impressed. Antennæ short, stout, hardly passing beyond base of pronotum; first segment club-shaped, second shorter than third, fourth, fifth and sixth almost equal to each other in length; all of these segments are shining brown and smooth; the seventh and eleventh form a thickened, pubescent, blackish club. *Prothorax* almost twice as broad as long; front margin emarginate to fit the width of the head, and narrower than the basal margin which is widely arched, sides rounded and oblique, anterior and posterior angles rounded; surface closely punctate. *Scutellum* triangular with surface smooth, impunctate, brown, in some cases the three sides are edged with a black border. *Elytra* broader than prothorax, convex: humerus raised into a convex knob; the marginal brown band is raised, very slightly convex, broader at the base and narrower towards the apex, bounded on the inner side by a row of punctures, its surface nearly impunctate; disc of elytra closely covered with punctures which have a tendency to arrange themselves in rows. *Underside* uniformly brown, lighter than the browns of the upper side, shining, smooth, impunctate.

Length, 6½ mm.

CEYLON.

Type in the Stockholm Museum. Specimens determined by Baly in the British Museum.

41. **Plagiodera rufescens**, *Gyllenhal.*

Chrysomela rufescens, Gyll., in Schönh., Syn. Ins. i, 2, 1808, p. 267, nota *f*; Weise, Arch. Naturg. lxvi, 1898, p. 212.

Coccinella virescens, Hope, in Gray, Zool. Misc. 1831, p. 31; Weise, Arch. Naturg. lxiv, 1898, p. 212.

Plagiodera cinctipennis, Baly, Ann. Mag. Nat. Hist. (4) x, 1862, p. 26.

Body convex. General colour of the head, pronotum, elytral margin all round and underside, reddish-brown; disc of elytra dark brown with bronzy reflections.

Head broader than long, surface slightly depressed in the middle, scattered over with a few punctures, with a median longitudinal line which meets two oblique lines, forming a λ-shaped figure; eyes convex. Antennæ short, hardly passing beyond the pronotum; the four basal segments shining, first stout, club-shaped, second, third and fourth small and almost equal to each other in length, fifth and sixth more thickened than the preceding three and slightly pubescent, the next five segments form a thickened and pubescent club which is piceous in colour. *Prothorax* narrower than elytra at the base; nearly twice as broad as

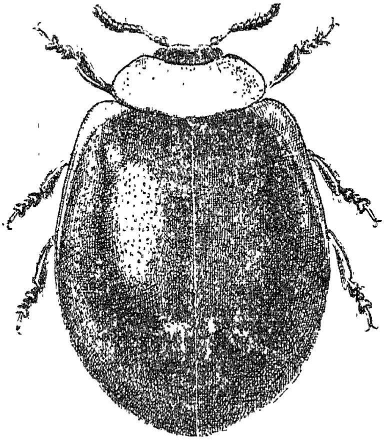


Fig. 21.—*Plagiodera rufescens*, Gyll.

long, the front margin widely emarginate to fit the width of the head, narrower than the posterior margin, sides widely rounded and oblique, basal margin uniformly and widely arched; upper surface sloping from base to front, smooth, shining and extremely finely punctate when seen under a high power. *Scutellum* triangular, with surface brown, smooth and impunctate. *Elytra* convex, rounded; anterior lateral angles rounded; edge all round with a margin which is broader at the base and narrower towards the apex; humerus raised into a knob; surface entirely and closely covered with punctures which tend to be arranged in irregular rows; the punctures vary in depth in the specimens before me; surface of the margin less punctate. *Underside* shining brown.

Length, 5 mm.; *breadth*, 4 mm.

N. India: Ratapani, Haldwani district, Kumaon, U.P., on

Gymnosporia championis (CELASTRACEÆ), 20. iv. 1923, 21 specimens (*H. G. Champion*). Originally described from "INDIA ORIENTALIS," and also subsequently recorded from CEYLON.

Type of *Coccinella virescens*, Hope, and of *Plagiodera cinctipennis*, Baly, in the British Museum.

42. Plagiodera divisa, *Jacoby*.

Melasoma divisa, Jac., Proc. Zool. Soc. Lond. 1887, p. 83.

Body ovate, moderately convex. Colour brown, the five apical segments of the antennæ and the scutellum black, the suture and a broad longitudinal band commencing from the base of the elytron and bifurcating at about the middle, metallic green; the outer branch of the bifurcating band usually becomes very narrow and, bending round inwardly, continues to meet at the sutural angle the sutural stripe of a similar colour, the inner branch extends a little beyond the middle; the sutural stripe, the elytral band, its breadth, its point of bifurcation, and the breadth and length of the branches, all vary.

Head broad, fitting well within the emargination of the pronotum; upper surface depressed in the middle, finely punctate and having a λ-mark, which in some specimens is well defined and in others feeble. Antennæ short, hardly extending beyond the base of the pronotum; first segment comparatively stout and club-shaped, second small, rounded, third slightly longer than second, fourth, fifth and sixth gradually becoming stouter, the seventh to eleventh much stouter, slightly expanded laterally and inwardly, and pubescent. *Prothorax* almost twice as broad as long, narrow in front, front edge emarginate, posterior margin correspondingly but more widely arched, sides and anterior and posterior angles rounded; upper surface gently convex from side to side, very minutely and scatteredly punctate, the punctures can be seen under a high power. *Scutellum* triangular, smooth, shining, impunctate. *Elytra* broader than prothorax; humerus raised into a prominence; along the lateral margin of each elytron is a slightly convex border which has the same width at the base as at the apex, is bounded by rows of punctures and also has one or two longitudinal rows along its middle line; the outer branch of the greenish elytral band runs along the inner side of this border, but stains only the apical part of its surface; surface of each elytron confusedly and thickly punctate, one or two longitudinal rows may be recognized along the suture. *Underside* smooth, shining, impunctate; sometimes the legs are stained with piceous; inner edge of the elytral epipleuron darker; tarsi not so strong as in other species of the genus, the claw-segment projecting much beyond the bilobed segment.

Length, $4\frac{1}{2}$–5 mm.

CEYLON (type-locality). SOUTH INDIA: Kanara (*T. R. Bell*).

Type in the British Museum.

43. Plagiodera transversa, *Olivier*.

Chrysomela transversa, Ol., Ent. v, 1807, p. 577, pl. 9, fig. 134.

The antennæ are black with the base yellow-brown. The eyes are black. The head is yellow-brown, marked on the vertex with a strongly impressed transverse line. The pronotum is shining yellow-brown, without any markings. The scutellum is yellow-brown. The elytra are very finely punctate, shining dark blue. The underside of the body is yellow-brown. It was obtained by M. Riche from "East India." The type is in M. Brongniart's collection.

The above is a translation of the original description in Latin and French. I have not seen the insect. The figure in Olivier's work, which is wrongly numbered, does not help in arriving at a proper diagnosis. This insect is put doubtfully under the genus *Plagiodera* in Weise's Catalogue (Col. Cat., part 68, 1916, p. 137), and is not included in the key which I have given above (p. 61).

Genus CHRYSOMELA, *Linn.*

Chrysomela, L., Syst. Nat., ed. x, 1758, p. 368; Latreille, Consid. gén. 1810, p. 432.*

Melasoma, Steph., Ill. Brit. Ent. iv, 1831, pp. 349–350; id., Man. 1839, pp. 303, 307; Redt., Gatt. deutsch. Käferf. 1845, p. 116; Weise, Ins. Deutschl. vi, 3, 1884, p. 551; Fowler, Col. Brit. Isl. iv, 1890, p. 308; Everts, Col. Neerl. ii, 1903, p. 445; Reitter, Fauna Germ. iv, 1912, pp. 124, 126.

Lina, Redt., Fauna Austr. 1849, p. 551; Chapuis, Gen. Col. x, 1874, pp. 369, 375; Jacoby, Biol. Centr.-Amer. vi, 1882, p. 193.

Melosoma, Bedel, Faune Col. Bass. Seine, v, 1892, p. 141.

Bionomics: Kirby & Spence, Introd. Entomol. ii, 1817, p. 279; Westwood, Introd. Classif. Ins. i, 1838, p. 388, f. 48; Chapuis and Candèze, Mém. Soc. Liège, viii, 1853, p. 610.

GENOTYPE, *Chrysomela populi*, L.

Body elongate. *Head* broad, with the upper surface marked with a Y, depressed and punctate. Antennæ hardly extending beyond the base of the pronotum, with the six apical segments thickened, forming an elongate club. *Prothorax* slightly narrower than the base of the elytra, its front edge broadly emarginate, posterior angles almost right angles, anterior angles rounded; an obliquely longitudinal strip of surface on each side of the pronotum is raised and convex. *Scutellum* triangular with apex rounded. *Elytra* confusedly punctate; along the lateral margin of each is an impunctate narrow border which is slightly convex, distinctly bounded from the confusedly punctate surface, and which sometimes bears an irregular row of punctures. *Underside*: in the species which represents this genus in India, the chief character which normally differentiates a beetle of this subfamily, viz., that the third (bilobed) segment of the tarsus is not split but entire

* Relative to the name of this genus, see remarks above (p. 17) under *Chrysolina*.

(that is, having the two lobes joined), is absent*. The tibiæ are channelled on the outer edge; the femora similarly channelled on the underside for the reception of the tibiæ. Anterior coxal cavities open. Claws simple.

Chrysomela differs from *Chrysolina* by having the mentum small, the episterna of the metathorax parallel, the lobes of the third segment of the tarsi split; the prothorax narrower than the elytra, and the upper surface of the elytra confusedly punctate.

Range. The species of the genus as a whole are recorded from Europe and Asia, Tropical and South Africa, Madagascar, North and Central America; those of the subgenus *Chrysomela*, s. str.", to which *Ch. populi* belongs, from Europe and Asia.

Key to the Species.

Elytra bright red in the living insect, light brown to red-brown in dried specimens, without metallic reflections	*Ch. populi*, L., p. 68.
Elytra metallic greenish, or occasionally violaceous, with æneous reflections	*Ch. chlorina*, sp. n., p. 69.

44. Chrysomela populi, *L.*†

Chrysomela populi, L., Syst. Nat. ed. x, 1758, p. 370.

Colour of elytra from light brown to red-brown, during life bright red, of prothorax, scutellum and underside blue-black; sometimes the prothorax has a very slight greenish tinge; the six thickened apical segments of the antennæ piceous; the apices of the sutural margins of the elytra blackish, which is sometimes obsolescent; the colour of the underside varies, sometimes being very light, almost brown.

Head as broad as the emargination of the front edge of the pronotum, deeply impressed with a Y-shaped mark on the upper surface, which is closely punctate; areas round the roots of the antennæ elevated and smooth. Antennæ with the five basal segments smooth and shining, the apical six covered with fine pubescence; first segment much thickened, second small, rounded, third longer than fourth, fifth more or less globular and shorter than fourth, the sixth to the eleventh gradually thicker. *Prothorax* quadrate, broader than long, basal margin widely arched, sides gradually rounded and slightly drawn forwards at the anterior lateral angles; the pronotum is gently convex from side to side and finely punctate in its central area; on the lateral, elevated, longitudinal area, which is separated from the central by a deep and oblique depression, the punctures are much coarser. *Scutellum* triangular with apex rounded, and surface smooth and impunctate. *Elytra* broader than the prothorax; the surface of each is completely and closely covered

* See footnote on p. 4.

† For full bibliography, systematic, anatomical, and biological, see Weise, Col. Cat., part 68, 1916, pp. 144, 145.

with punctures; a slightly convex, narrow and smooth border, distinctly delimited from the coarsely punctate surface, runs the whole length of the elytron, this border being as broad at its base as at the apex. *Underside* shining, abdominal segments finely punctate.

Length, 8–11 mm.

HIMALAYAS: Kashmir, 5200 feet., iv–vi. 1923 (*F. J. Mitchell*); Dungagali, Hazara district, 8000 ft., 21–24. v. 1915 (*Fletcher*, Pusa Coll.); Simla Hills, Matiana, 8000 ft. (*N. Annandale*); Phagu, 9000 ft., 8–21. v. 1916 (*Annandale and Kemp*); Darjeeling (*G. Rogers*); Ranikhet, W. Almora, 7000–9000 ft., vi. 1917, and Sukhatal, 8000 ft., both in Kumaon (*H. G. Champion*). ASSAM: (*W. F. Badgley*); Shillong (*F. W. Champion*); same locality, 10. vi. 1918 (Pusa Coll.). Originally described from EUROPE, also known from NORTH AFRICA, NORTH and WEST ASIA, CHINA and JAPAN.

Etienne Rabaud (Feuille jeun. Natur. xxxix, 1909, p. 101) reports that this beetle is attacked by a dipterous parasite, *Meigenia bisignata* (Meigen); species of this genus are known to parasitize certain other CHRYSOMELIDÆ.

45. **Chrysomela chlorina**, sp. nov.

Body oblong, slightly broadened posteriorly. Colour of elytra and underside metallic greenish with brassy or bronze reflections; in some specimens the greenish colour is replaced by purple or violaceous; pronotum, legs and lateral margins of the abdominal sternites faintly brown, a group of five small round spots on the pronotum, and sometimes its anterior and posterior edges, blackish; two of these spots, in the middle, are more prominent, the others more or less obsolescent; the six or seven basal segments of the antennæ shining brown, the rest blackish.

Head broad, depressed in the middle, more or less closely and strongly punctate, the punctures in the central depression coalesce and produce rugulosity; clypeus well delimited by two deeply impressed oblique lines meeting at a point in the depressed central area; eyes strongly convex. *Antennæ* short, hardly reaching the base of the pronotum, the four apical segments forming a thickened club covered with whitish hairs; first segment very large and globular, second shorter than third, rounded at its apex and constricted at its base, third and fourth more or less equal, fifth slightly shorter than fourth and similar in structure to second, sixth and seventh very short; the six or seven basal segments are sparsely punctate, each puncture bearing a silvery-white hair. *Prothorax* broader than long, front margins widely emarginate, base slightly convex in the middle, from which point to the posterior lateral angle on either side it is almost straight; sides straight, broadly rounded at the anterior angles, posterior angles almost right angles; on the pronotum along the middle is a longitudinal, faintly but distinctly

impressed line, which is sometimes very faint and often obliterated posteriorly; the whole surface is punctate with a mixture of finer and coarser punctures, the former being more numerous on the central area and on the lateral areas, where some punctures have coalesced, especially along the margins; on each side of the longitudinal central line the surface is very slightly depressed, in some specimens more so than in others; pronotal blackish round spots are disposed as follows: on the central area, on each side of the longitudinal middle line, a comparatively large and often prominent spot; a little posterior to it, but exactly on the middle line, a small spot, and one on each side, generally on the depression. *Scutellum* triangular

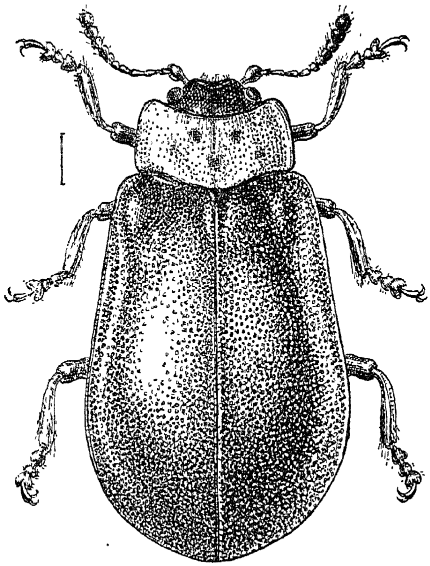


Fig. 22.—*Chrysomela chlorina*, Maulik.

with apex rounded; surface rough, finely punctate and sometimes with a depression. *Elytra* slightly broader at the base than the prothorax; humerus convex, prominent, and just within it there is a deep depression; the whole surface is closely and strongly punctate near the suture and on the basal area there is a tendency for the punctures to form longitudinal rows; posterior to the humerus is an ill-defined rib, the interstices generally are not smooth; the marginal area posterior to the humerus is rugose; along the margin lies a slightly raised, impunctate, but more or less rugose border, followed by a longitudinal row of punctures along the extreme edge. *Underside*: the surface generally is transversely strigose, one or two abdominal sternites may have

few scattered punctures in the middle; prosternum slightly constricted in the middle, broadly rounded at the apex, sides margined, surface rough. Tarsi with the third (bilobed) segment split along the middle, the claw-segment long, projecting much beyond the preceding one, the claws simple.

Length, 6½–8 mm.

WESTERN HIMALAYAS: Kumaon, Almora, Ranikhet, on *Alnus*, vi. 1917; Sunderdhunga Valley, 8000–12,000 ft. (*H. G. Champion*). This species is gregarious, large numbers being found feeding together.

Type in the British Museum. Described from seventeen examples.

Genus **PAROPSIDES**, *Motschulsky*.

Paropsides, Motsch., in Schrenck's Reisen Amurl. ii, 1860. p. 192; Chapuis, Gen. Col. x. 1874, pp. 442, 445; Marseul, Abeille, xxvii, 1889, p. 144; Weise, Arch. Naturg. lxvii, 1901, pp. 166, 168.

GENOTYPE, *Paropsis duodecimpustulata*, Gebl. 1825 (Siberia).

Oval or rounded, convex beetles. Colour dark brown, reddish-brown, or light yellow, with or without markings. *Head* broader than long, fitting the emargination of the pronotum, with surface punctate and with a Y-shaped mark. Antennæ not long, hardly passing beyond the base of the pronotum. Mandibles strong; labrum broad and set with bristles; apical segment of the labial palpi broad, more or less compressed and truncate. *Prothorax* much broader than long, front margin emarginate, the posterior margin is a wide arch so that generally there are no posterior angles, neither are there any well-defined lateral margins, anterior angles generally rounded. *Scutellum* triangular with varying degree of angularity of the apex. *Elytra* punctate-striate; the number of striæ varies, and sometimes the punctures are so numerous and confused that the striæ can be hardly recognized. *Underside*: prosternum convex, elongate, its posterior end having a Λ-shaped notch which fits into a small projection of the anterior end of the mesosternum; the epipleuron of each elytron is vertical, concave, and broader at the base than at the apex. The first segment of the tarsi is broad and oval, in repose it fits into a concavity in the apical and outer side of the tibia; the claws have a sharp appendix on the underside.

Range. East Siberia, China, India, Australia.

Key to the Species.

1. Each elytron has six large, roundish, light brown patches on a red-brown ground-colour .... *P. pardalis*, Jac., p. 72.
   No such markings .... 2.

2. Pronotum with three roundish black patches and each elytron with a pattern of sixteen black patches....	*P. duodecimpustulata*, Gebler, var. *hieroglyhica*, Gebler, [p. 73.
No such markings	3.
3. Body more convex and larger, length 11–12 mm., breadth 8 mm., generally with four black spots on the pronotum and a few on the elytra; elytral punctures generally irregular	*P. nigropunctata*, Jac., p. 74.
Body more elongate, length 10 mm., breadth 7 mm., without any markings at all; punctures arranged in ten rows on each elytron	*P. chennelli*, Baly, p. 76.

46. Paropsides pardalis, *Jacoby*.

Paropsides pardalis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 918

Body convex, rounded. Colour shining dark red-brown to lighter brown; each elytron has six lighter-coloured roundish patches disposed as follows: one at the base just outside the scutellum, another behind the humerus, a third placed near it on the inner side, the fourth and fifth on a transverse line behind the middle, and finally the sixth situated on the apical area. Apices of the mandibles, edges of the prosternum, the mesosternum and the middle coxæ, black.

Head broad, surface covered with finer and coarser punctures, the oblique arms of the Y-shaped mark enclosing a very wide angle and curved inwardly at their apices; eyes convex and placed obliquely. Antennæ hardly passing beyond the base of the prothorax, the five apical segments dilated and very sparsely covered with fine hairs; first segment thickened and club-shaped, second short, third slightly longer than fourth, fifth and sixth almost equal to each other in length. *Prothorax* as broad as the elytra at the base and twice as broad as long; front margin emarginate, from one anterior angle to the other the margin forms a wide and continuous arch; upper surface confusedly and more or less uniformly covered with coarser and finer punctures. *Scutellum* triangular, smooth and impunctate. *Elytra* convex; each elytron has one long scutellar row of punctures and nine other rows, between the ninth (outermost) row and the margin there are some confused punctures; in some examples the punctures are black, in others not. *Underside* smooth, shining, impunctate. The convex prosternum is channelled longitudinally in the middle.

Length, 8 mm.

BURMA: Karen Hills (*Fea*, *Doherty*, type-locality); Ruby Mines, 5500–7500 ft. ASSAM: Sadiya (*Doherty*); Manipur (*Doherty*).

Type in the British Museum.

47. **Paropsides duodecimpustulata**, *Gebler*, var. **hieroglyphica**, Gebler.

Paropsis hieroglyphica, Gebl., in Hummel, Essais ent. iv, 1825, p. 55; Jac., Proc. Zool. Soc. Lond. 1888, p. 348; Marseul, Abeille, xxvii, 1889, p. 146; Jacobson, Hor. Ross. xxvii, 1892 (1893), p. 123; Weise, Arch. Naturg. lxvii, 1901, p. 169; Jacobs., Käf. Russl. 1909, pl. 57, f. 40.

Body oval, convex. Colour dark brown to light brown with the following pattern of black spots and patches on the head, pronotum and elytra: two patches on the head, three roundish patches on the pronotum, one occupying the middle and each of the others the lateral areas; on each elytron, three transverse lines—one basal, one median and the third postmedian—of more

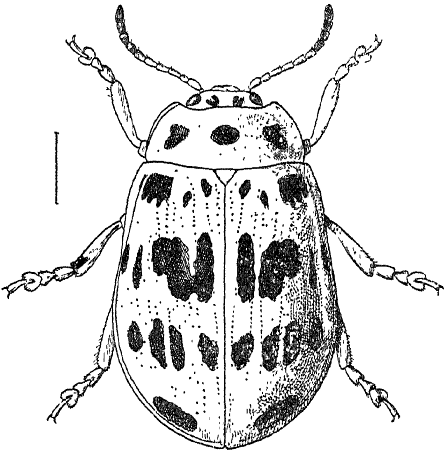


Fig. 23.—*Paropsides duodecimpustulata*, Gebl., var. *hieroglyphica*, Gebl.

or less longitudinal patches, five in each line; some may be more elongate than others and some may be only small spots; besides this pattern of spots there is generally one small roundish spot on the apical area, so that there are altogether sixteen patches on each elytron; in the median series the second and third patches counting outwards from the suture are generally joined.

The above description of the pattern is drawn up from var. *hieroglyphica*, which is a definite variety, to which all the specimens of this species from our faunistic area belong. In the typical form of *P. duodecimpustulata* some of the spots and patches are greatly enlarged and coalesce to form bands, thereby suffusing the surface with so much black that the yellow-brown ground-colour is considerably reduced, and the insect possesses yellow-brown patches on a black ground. In such individuals

the head and pronotum are generally entirely black. Such specimens have not yet been recorded from within our limits, but occur in Siberia and China. In all cases the fundamental unity of the colour-pattern can be traced. The underside of typical *P. duodecimpustulata* is generally entirely black, but in some specimens the colour is much lighter; in var. *hieroglyphica* it is usually dark brown with black in the central area, but this may be darker or lighter. This insect having so wide a distribution, such variation may be expected.

Head broad, entirely punctate, with the surface uneven. Antennæ passing beyond the base of the pronotum, first segment club-shaped, second smaller than third, which is slightly longer than the fourth, fifth is almost equal to fourth, from the sixth to the eleventh the segments are slightly thicker. *Prothorax* much broader than long, the shape and form being characteristic of the genus; upper surface uneven, slightly depressed on the lateral areas occupied by the black patches; surface covered with finer and coarser punctures, the former being on the central area and the latter on the lateral. *Scutellum* triangular, smooth, impunctate. *Elytra* broader than the prothorax, not very thickly punctate, the punctures more or less arranged in striæ, which, however, are not regular enough to be definitely counted; in some specimens they are more regular than in others. *Underside* smooth, shining, impunctate.

Length, 6–8 mm.

ASSAM: (*W. F. Badgley*, *Atkinson*); Khasi Hills, 1000–3000 ft., Gauhati (*Andrewes*); Shillong, 1000–5000 ft., v. 1905, and Dumpep, Khasi Hills, 6000 ft., 19. x. 1920 (*Fletcher*), 10 examples from these localities in the Pusa Collection. BURMA: Ruby Mines (*Doherty*). Also known from SIBERIA and CHINA.

Location of *type* unknown to me.

48. Paropsides nigropunctata, *Jacoby*.

Paropsides nigropunctata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 918.

Body oval, convex. Colour shining dark red-brown to light yellowish; two round black spots on the head; four black spots or small patches on the pronotum and three on each elytron are so arranged as to form a circle; of the elytral spots the largest one is nearest the suture and has the shape of an inverted comma, the arms sometimes uniting and running along the suture to the scutellum; besides this pattern of spots each elytron has one round one on the outer part of the disc just behind the middle. All these spots are variable in size and intensity, in some cases they are quite obsolescent, and sometimes they are much larger, coalescing with each other. The apices of the mandibles are black.

Head broad, with surface strongly and closely punctate, the Y-shaped mark is very wide, its oblique arms being curved at

their apices and forming a very wide angle; eyes convex and placed obliquely. Antennæ just passing the base of the prothorax, sparsely sprinkled over with hairs; first segment club-shaped, second small and rounded, third and fourth equal in length, fifth and sixth similarly equal to each other, each of the next five segments slightly thickened. *Prothorax* almost as broad as the base of the elytra and more than twice as broad as long, front margin widely emarginate, anterior angles more acute than the

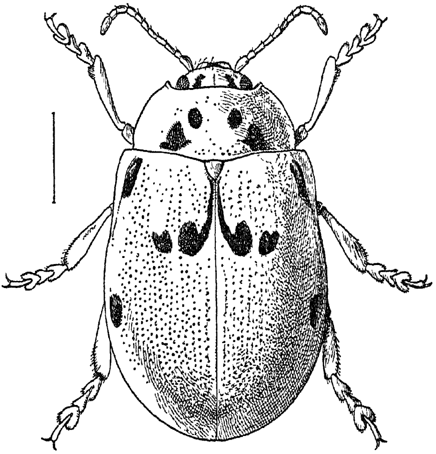


Fig. 24.—*Paropsides nigropunctata*, Jacoby, ♀.

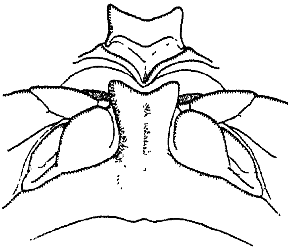


Fig. 25.—*Paropsides nigropunctata*, Jacoby. Prosternum, anterior coxæ and trochanters, and anterior part of mesosternum.

posterior ones which are, in this species, widely rounded, sides convex, basal margin more or less bisinuate; upper surface greatly convex from side to side and completely covered with punctures which are more crowded and coarser at the sides than in the middle. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* widening behind to a certain extent, the convex, shining, impunctate humerus covered by one of the large round black

patches; surface moderately closely and confusedly punctate; amidst the confused punctures about eight or nine rows at long intervals are distinguishable, but they are not definite. *Underside* smooth, shining, impunctate. The first segment of the tarsi is the largest.

Length, 11–12 mm.; *breadth*, 8 mm.

BURMA: Karen Hills, v–xii. 1888 (*Fea*). ASSAM: Manipur (*Doherty*); Shillong, 5000 ft., vi–vii. 1918, on apple leaf (*Fletcher*). SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*); Lebong, Darjeeling, 5000 ft., ix. 1908 (*Lefroy*). One specimen from Mungphu, from Jacoby's own collection and marked by him as a type, is now in the British Museum, although this locality is not mentioned in the original description. The true *type* should be in the Genoa Museum.

49. **Paropsides chennelli**, *Baly*.

Paropsides chennelli, Baly, Cist. Ent. ii, 1879, p. 438.

Body elongate. Colour brown without any markings.

Head broad, coarsely punctate, the oblique arms of the Y-shaped mark are straight. Antennæ slender, sparsely covered with hairs and reaching a little beyond the base of the pronotum; first segment elongate, club-shaped, second small, third and fourth almost equal to each other in length, fifth a little shorter, from the sixth to the eleventh the segments are very slightly thickened. *Prothorax* less than twice as broad as long, sides straight and nearly parallel from the base to the middle, thence rounded and converging to the apex, anterior angles acute, posterior obtuse, front margin broadly emarginate, basal margin very gently bisinuate on either side; upper surface rather coarsely and closely punctate, broadly excavated on either side, where the punctures are coarser and coalesce to make still coarser pits. *Scutellum* triangular, smooth, impunctate. *Elytra* convex, broader than the prothorax, very slightly dilated behind, broadly rounded at the apex, regularly punctate-striate, each elytron having nine rows besides a scutellar row; between the ninth row and the slightly reflexed lateral margin there is a broad, smooth space which may be called the tenth interspace, outside which the surface is slightly depressed and strongly, coarsely and confusedly punctate; interspaces very minutely and confusedly punctate and, counting the interval between the suture and the first row as the first, the third, fifth, seventh, and ninth appear to be slightly elevated, and not, as Baly writes, the fourth, sixth, eighth, and tenth; although this character is more clearly visible in the type-specimen from Assam, yet all the specimens from Sikkim do not show it. *Underside* sometimes darker than upper side, smooth, shining and impunctate.

Length, 10 mm.; *breadth*, 7 mm.

ASSAM (type-locality). SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*).

Type in the British Museum.

Genus PHYTODECTA, *Kirby.*

Phytodecta, Kirby, Fauna Bor.-Amer. iv, 1837, p. 213; Weise, Ins. Deutschl. vi, 3, 1884, p. 488; Jacobson, Hor. Ross. xxxv, 1901, p. 89; Reitter, Fauna Germ. iv, 1912, p. 128.

GENOTYPE, *Chrysomela rufipes*, de Geer, 1775 (North America).

In 1837 Kirby proposed *Phytodecta* as a subgenus of *Chrysomela*, for the above North American insect, on two characters: (1) "tibia armed near apex with an external tooth, (2) elytra punctured with the punctures arranged in rows." Later the subgenus was given the rank of a genus. The geographical distribution is generally Palæarctic, representatives having been obtained from North America, Norway, Sweden, Finland, Siberia, China, Japan, the Carpathians, and the Ural Mountains, and also occurring in Central Europe. The insects described under this genus from our faunistic limits are from Burma and Manipur in the north-east corner of India. In general form and build of the body and in the possession of the external tibial tooth our species resemble the genotype, but they differ in having the elytral punctures confused and not arranged in definite series. In spite of this fact a tendency to form series amongst the confused punctures is always noticeable, in some species, as for example in *Ph. flavoplagiata*, Jac., from Tonkin, more markedly than in *Ph. chrysomeloides*, Jac. In those species in which the regularity of the series is most pronounced, as in all which are before me in the collection of the British Museum, the interspaces are more minutely and confusedly punctate. On the other hand, when the interspatial punctures become stronger and more dominant, the whole punctuation of the elytra is confused. In spite of their geographical distribution and the absence of seriate punctuation of the elytra, I am unwilling to erect a separate genus for these species, although it is possible that examination of more material later may justify their separation.

Range, discussed above.

Key to the Species.

1. Pronotum with four round black spots in a transverse line	*Ph. chrysomeloides*, Jac., [p. 78.
Pronotum with no such spots	2.
2. Elytral punctures strongly impressed, entirely confused, body feebly shining	*Ph. trilochana*, sp. n., p. 81.
Elytral punctures not strongly impressed, with at least a certain amount of arrangement in longitudinal rows	3.
3. Insect opaque	*Ph. siva*, sp. n., p. 80.
4. Insect shining	*Ph. manipuria*, sp. n., p. 79.

50. Phytodecta chrysomeloides, *Jacoby*

Phytodecta chrysomeloides, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 189.

Body subquadrate-ovate, very convex. Colour yellow-brown to darker brown, with four black spots in a transverse line on the pronotum; scutellum black; each elytron with seven black spots distributed as follows: on the humerus, a larger one near the scutellum, two placed transversely at the middle, of which the inner spot is of narrowly transverse shape, and three others placed transversely below the middle, the innermost spot being situated on the sutural margin; breast piceous, sometimes black; posterior margin of the pronotum and base of elytra edged with black.

Head: upper surface uneven, finely punctate, anterior margin of epistome straight. Antennæ not extending beyond the base

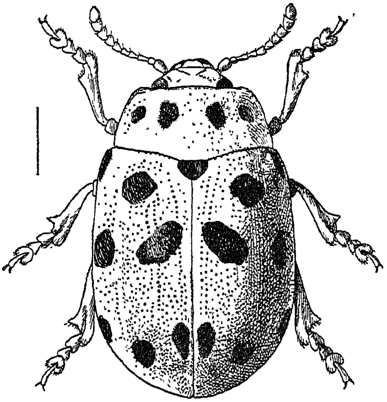


Fig. 26.—*Phytodecta chrysomeloides*, Jacoby.

of the prothorax, the six terminal segments transversely widened, each more so than the preceding one; first segment long, club-shaped, second shorter but thicker than third, third, fourth and fifth almost equal to each other. *Prothorax* twice (not three times, as Jacoby writes) as broad as long, sides straight and oblique, narrowed in front, front margin emarginate; posterior margin forming a nearly straight, but oblique, line on either side from the middle to the hind angle; anterior angles rounded, almost right angles, posterior acute; surface convex with a few irregularly distributed punctures, stronger at the sides than on the disc. *Scutellum* triangular, much broader than long, smooth, impunctate. *Elytra* subquadrate, very convex, as broad at the base as the prothorax, widened behind; upper surface very strongly, closely and confusedly punctate, a narrow border along the lateral margin impunctate; on each elytron two narrow impunctate longitudinal

stripes are faintly visible. *Underside* strongly punctate, the three intermediate abdominal sternites narrow and edged with black. The tibiæ triangularly dilated and toothed near the apex, and excavated in the same region on the upper side for the reception of the first segment of the tarsus. The claws with an appendix on the underside.

Length, 7½–8 mm.

BURMA: Bhamo, July (*L. Fea*); Momeik (*Doherty*).

Type in the British Museum.

51. **Phytodecta manipuria**, sp. nov.

Body oblong-ovate. Colour shining yellow-brown to red-brown with black markings on the head, pronotum and elytra arranged as follows: one roundish patch in the centre of the upper surface of the head; at the base on each side of the longitudinal middle line on the pronotum is a large triangular patch, the apex sometimes reaching the middle of the disc, and the bases of the two triangular patches meeting in front of the scutellum; on each elytron at the base internal to the humeral callus a large patch, on a median transverse line two large patches, generally confluent in the middle, the inner one extending obliquely and along the suture to the scutellum, on a post-median transverse line two confluent patches which sometimes form a transverse, irregular band, the inner patch generally extending and staining the suture to some extent, and finally, on the apical area of the elytron, contiguous to the suture, is a roundish spot which sometimes extends along the suture to the apical angle, but is sometimes obsolescent. Scutellum black. Underside almost entirely black, sometimes the abdominal sternites are only partially so; the legs always share the general ground-colour of the body.

Head: surface more or less uneven, closely punctate, the arms of the Y-shaped mark straight and sometimes very faint. Antennæ hardly passing beyond the base of the pronotum; first segment large, thickened, second small, third much longer, fourth a little shorter than third, fifth and sixth are equal to each other, from the seventh to eleventh the segments are gradually thicker and piceous in colour. *Prothorax* as broad at the base as the base of the elytra, front margin widely emarginate; posterior margin forming an almost straight, but slightly oblique line on each side of the middle; sides straight and parallel from the base to the middle, whence they curve in towards the anterior angles, which are rounded, the posterior ones being almost right angles; upper surface convex, more or less sparsely covered with a mixture of finer and coarser punctures, the latter are mostly crowded on the sides and the former in the middle area. *Scutellum* smooth, impunctate and shining. *Elytra* almost parallel-sided, rounded at the apex; surface confusedly covered with finer and coarser punctures, which however show some tendency to form rows; some of the intervals, particularly one or two just within the

humerus, are perceptibly raised; there is an impunctate marginal area along the edge. *Underside* shining, finely and scatteredly punctate. Tibiæ excavated at the apex for the reception of the first segment of the tarsus, and armed externally with a tooth; underside of the femora channelled for reception of the tibiæ; claws appendiculate.

Length, 7 mm.

ASSAM: Manipur (*Doherty*).

Type in the British Museum. Described from four examples.

52. **Phytodecta siva**, sp. nov.

Body oblong-ovate, opaque. Colour of head yellow-brown to red-brown with a black patch on the upper surface; the five terminal segments of the antennæ piceous, the remaining segments share the general colour of the head; pronotum yellow-brown to

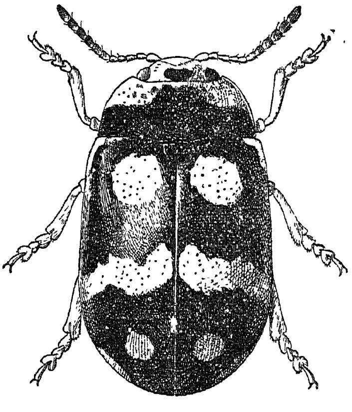


Fig. 27.—*Phytodecta siva*, Maulik.

red-brown with the greater portion of the basal half black, this latter colour extending longitudinally and broadly to the front margin; scutellum black; each elytron largely black with the following yellow-brown or red-brown markings: (1) between the scutellum and the humerus one large patch, (2) part of the surface round the anterior lateral angles, (3) an irregular, narrow and transverse post-median band, (4) nearer the suture on the apical part of the surface one small round spot, and (5) finally a smaller area at the external apical angle. Underside generally black, abdominal sternites partly so, and an area along the sides of the prothoracic sternum, with the epipleura, yellow-brown or red-brown, the legs sharing this latter colour. The whole insect may be conceived as having brown as the ground-colour and black as secondary, but the latter predominates to such an extent that the opposite may be the true colour-scheme.

Head broad, with the upper surface closely punctate and with the arms of the Y-shaped mark straight. Antennæ short, hardly passing beyond the base of the pronotum; first segment long, thickened and club-shaped, second small and rounded, third elongate, longer than fourth, fifth and sixth smaller and stouter, the seventh to the eleventh gradually thicker; the whole antennæ sparsely covered with fine hairs. *Prothorax* broader than long, gently convex from side to side, front margin emarginate, basal margin almost straight, sides almost straight from the base to the middle and thence curved in towards the anterior angles, which are rounded, the posterior being almost right angles; upper surface closely punctate, with a fine impunctate longitudinal line along the middle. *Scutellum* broad, smooth, shining, impunctate. *Elytra* as broad at the base as the prothorax, slightly widening behind; the upper surface is much smoother than in *Ph. manipuria* and the punctures are more regularly arranged than those of any other species from our region; they are more or less arranged in double rows, and this regular disposition extends throughont the whole length, though the intervals are confusedly punctate; on each elytron two or three very gently raised intervals may be recognized. *Underside* shining, covered with strong punctures. Tibiæ excavated at the apex and armed externally with a spine; femora channelled on the underside for the reception of the tibiæ; claws with an appendix on the underside.

Length, 6 mm.

ASSAM: Manipur (*Doherty*).

Type in the British Museum. Described from two examples.

53. **Phytodecta trilochana***, sp. nov.

Body ovate, feebly shining. Ground-colour red-brown with the following black markings: the whole basal edge of the pronotum narrowly black with three extensions of the black colour forwards, one in the middle longitudinally and one on each side; the former projects narrowly along the middle, broadening in front, where it meets the anterior margin, the latter are each in the form of a more or less triangular patch, not meeting the lateral margin; scutellum black; on each elytron are (1) a large, round, black patch between the scutellum and the humerus, (2) a broad median band formed by the confluence of two large round patches, (3) on a post-median transverse line two patches, a small one contiguous to the suture and a much larger, round one situated further outwards, and (4) finally, at the apical sutural angle, a small elongate patch; on the underside the thoracic sterna and the first abdominal sternite are wholly, and the other sternites partly, black; antennæ much lighter than the ground-colour of the body.

Head broad, with the upper surface uneven, strongly and closely punctate, the Y-shaped mark being deeply impressed. Antennæ

* "Three-eyed," a name of Siva, of Sanskrit origin.

passing beyond the base of the pronotum; first segment elongate, thickened and club-shaped, second also elongate and club-shaped, but shorter than the first and not much stouter than the third, third, fourth and fifth more slender, almost equal to each other, the sixth to the eleventh much thickened and covered with brownish hairs. *Prothorax* narrowed in front, broader than long, front edge emarginate, base almost straight on either side of the scutellum, sides almost straight or very gently rounded from base to anterior angles, which are rounded, the posterior ones being almost right angles; upper surface convex from side to side, the sides covered with large, coarse and confluent punctures, and the middle with both finer and coarser ones, the latter however are much less coarse than those on the sides. *Scutellum* triangular with apex broadly rounded, almost as broad as long, smooth and

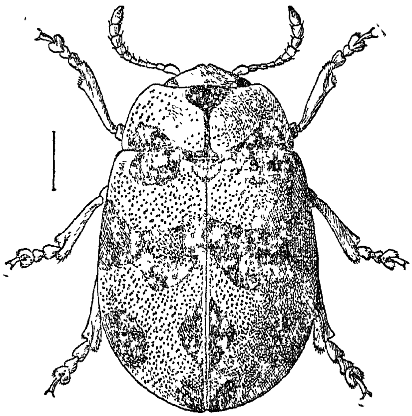


Fig. 28.—*Phytodecta trilochana*, Maulik.

impunctate. *Elytra* slightly broadened behind; their whole surface is confusedly and strongly punctate, without any trace of arrangement of the punctures in longitudinal series; in this particular this species shows an extreme condition within the genus; along the margin there is a narrow impunctate strip. *Underside* more shining than the upper side; abdominal sternites more or less sparsely punctate, other parts also bearing punctures, sometimes coarser. Apices of tibiæ externally ending in a spine, excavated for the reception of the first segment of the tarsus; underside of femora channelled; claws with an appendix on the underside.

Length, 7 mm.

Upper Burma: Myitkyina District, Sadon, 2500–3500 ft., v. 1911 (*E. Colenso*).

Type in the Indian Museum; described from one example.

Genus PHYLLODECTA, *Kirby*.

Phyllodecta, Kirby, Fauna Bor.-Amer. iv, 1837, p. 216; Weise, Ins. Deutschl. vi, 3, 1884, p. 511; Fowler, Col. Brit. Isl. iv, 1890, p. 316; Jacobson, Hor. Ross. xxxv, 1902, p. 89; Everts, Col. Neerl. ii, 1903, p. 440; Reitter, Fauna Germ. iv, 1912, p. 127.

GENOTYPE, *Chrysomela vitellinæ*, L. 1758 (Europe).

Kirby formed this genus by separating *P. vitellinæ*, L., from *Chrysomela* *, from which it is distinguished by having the second antennal segment equal to the third. Actually these two segments look not exactly, but approximately, equal in length. I have examined *P. vitellinæ* in the British Museum collection; it is similar to the following insect from within our faunistic limits, in general structure as well as in the form of the antennæ. *P. vitellinæ* occurs in Europe, Siberia and North America. Two other important generic characters are (1) that the anterior coxal cavities are open in the present insect and (2) the appendiculate nature of the claws. The third (bilobed) segment of the tarsus is not entire as is usually found in the subfamily, but split—a feature which is also present in *Agasta formosa* and *Chrysomela populi*. The occurrence of this Palæarctic genus within our boundaries is interesting.

Range. North America, Alaska, Kamchatka, China, Siberia, Asia Minor, Armenia, Europe.

54. Phyllodecta abdominalis, *Baly*.

Phratora abdominalis, Baly, Cist. Ent. ii, 1878, p. 375.

Body elongate. Colour shining blue; the two basal segments of the antennæ brown, stained above with piceous, the other segments piceous or black; the two apical abdominal sternites may be brown.

Head quadrate, vertex impressed, but not very closely, with large deep punctures, in front more closely but less coarsely punctured; the whole surface uneven, the roots of the antennæ swollen, consequently the surface anterior to them is deeply depressed. Antennæ scarcely more than half the length of the body, and sparsely covered with fine hairs; first segment thickened, second long and slender, very slightly shorter than the third and equal to the fourth in length, fifth almost equal to fourth, the sixth to the eleventh slightly thickened, almost equal, elongate. *Prothorax* narrower than the elytra, quadrate, almost as broad as long, being about one-half millimetre shorter along the shortest length than the width, front margin emarginate, anterior angles slightly drawn forwards, sides almost straight or slightly convex in the middle, base widely arched, posterior angles ending in an acute tooth; upper surface irregularly punctate, interspaces smooth and shining in the middle and finely rugulose at the sides.

* = genus *Chrysolina* of the preceding pages.

Scutellum triangular, small, smooth and impunctate. *Elytra* broader than the prothorax, parallel, rather strongly punctured, the punctures arranged in ill-defined longitudinal rows which approximate towards the apex, the interspaces plain and very minutely punctured in front, rugulose outwardly below the humeral callus. *Underside* impunctate except the margins of the abdominal sternites, each of which has a row of fine punctures. Basal segment of the tarsi large, that of the anterior ones more broadened, the third (bilobed) segment not entire, that is, split longitudinally along the middle; claws appendiculate.

Length, 6 mm.

PUNJAB: Murree (*Dr. F. Stoliczka*); same place, 7500 ft., vi. 1918, 5 examples (*Dutt*, Pusa Coll.). UNITED PROVINCES:

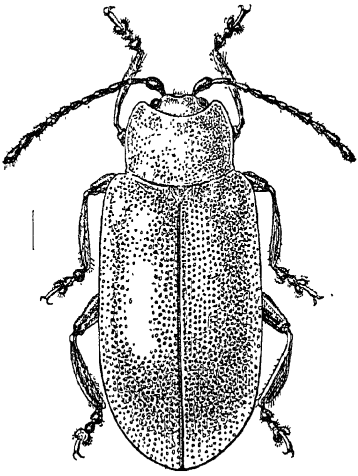


Fig. 29.—*Phyllodecta abdominalis*, Baly.

Naini Tal; Garhwal, 6500 ft.; Sunderdhunga Valley, 8000–12,000 ft.; all these three places in Kumaon, 16 specimens (*H. G. Champion*).

The *type* should be in the Indian Museum, where, however, it cannot be found, though the label is there [" Murree " (Yarkand Expd.)] in Baly's handwriting. In the British Museum there is also a specimen which bears a label in Baly's handwriting, but it has " Kashgar " as the locality. " Murree " is the locality originally published. Dutt's and Champion's specimens, recorded above, lend weight to the view that Murree is correct as the original place, Dutt having taken this species there in 1918, and Champion's captures having been obtained not far away. I have compared Champion's specimens with the specimen labelled by Baly in the British Museum, and they agree.

Genus **LYCARIA**, *Stål.*

Lycaria, Stål, Öfv. Vet.-Ak. Förh. xiv, 1857, p. 59; Chapuis, Gen. Col. x, 1874, p. 420.
Lygaria, Jacoby, Novit. Zool. i, 1894, p. 521; Weise, Deutsche Ent. Zeitschr. 1895, p. 349; *op. cit.* 1900, p. 269.

GENOTYPE, *Lycaria westermanni*, Stål 1857 (Assam).

Body ovate, strongly convex. The apical segment of the maxillary palp is smooth, truncate and conical, the two preceding segments much thicker, club-shaped, and almost equal to each other in length. Eyes oblong, inner margin sharply emarginate. Antennæ much dilated towards the apex. Prothorax almost as broad at base as the elytra. Scutellum triangular with apex rounded. Elytra punctate-striate, each with twenty rows of punctures, of which eighteen are more or less arranged in pairs. Prosternum narrow, anterior coxal cavities closed. Claws each divided into two parts, the inner one being smaller.

This genus was founded by Stål on an insect from Assam which he called *L. westermanni*, but it has since been taken in Siam, Burma and North India; thus it is evident that the insect has a wide range. Stål spelt the generic name with a "c," not a "g" as is given by Weise, Col. Cat., part 68, p. 197, 1916. The "c" was changed to "g" by Gemminger and Harold (Munich Cat., xi, 1874, p. 3456) for etymological reasons, and other authors have followed them. I adhere to the original spelling.

Range, as stated above.

55. **Lycaria westermanni**, *Stål.*

Lycaria westermanni, Stål, Öfv. Vet.-Ak. Förh. xiv, 1857, p. 59.

Body oval, very convex. Colour yellow-brown to dark brown, that of the six apical segments of the antennæ piceous.

Head: surface covered with fine and coarser punctures, the finer ones being mostly in the middle; clypeus well marked off and covered with coarser punctures. Antennæ extending slightly beyond the base of the pronotum, first segment dilated, second globular, third club-shaped; from the fourth to the eleventh each segment is considerably dilated, with the root constricted, smooth and shiny, the dilated portion being opaque and hairy; the last segment is bluntly conical. *Prothorax* almost as broad as the base of the elytra, convex, sides rounded; upper surface shining and very sparsely covered with finer and coarser punctures, the latter being more numerous at the sides. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* convex, humerus prominent; each elytron has a single row of punctures along the suture and nine pairs of rows on the disc; the latter rows, though not very regular as regards the position of the punctures within each row, can yet be easily recognized as forming paired series; the rows converge and meet in pairs towards the apex.

Underside generally impunctate, except the femora, sparsely covered with fine golden-brown hairs.

Length, 7½–8 mm.; *breadth*, 5½–6 mm.

ASSAM (*Doherty*, type-locality). BURMA: Ruby Mines (*Doherty*); Karen Mts. (*Doherty*); Rangoon; Momeik (*Doherty*); Bhamo Hills, 4000 ft., v. 1916, and Karen Hills, 3000 ft., 18–21. v. 1916 (*F. W. Mackwood*); Tenasserim (*Atkinson*); Tavoy (*Doherty*); Kawkareik, Amherst District, 19–20. xi. 1911 (*F. H. Gravely*, Ind.

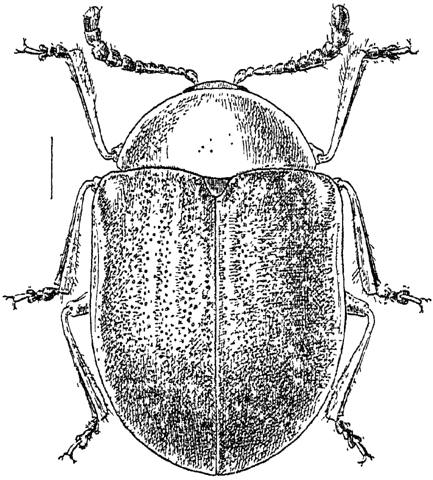


Fig. 30.—*Lycaria westermanni*, Stål.

Mus. Coll.); Moulmein, 20. vi. 1911 (*W. H. C. Pope*); Mandalay, 3. iv. 1913; Naba, 24. iv. 1918; Tatkon, 6–7. ix, on *cotton* (*Fletcher*); these last four records are based on 8 examples in the Pusa Collection. Also occurs in SIAM (Brit. Mus.) and INDO-CHINA (*Mouhot*, Brit. Mus.).

Type in the Stockholm Museum.

There is in the British Museum a specimen identified by Stål, with a label written by Baly; this example is from Siam.

Genus CHALCOLAMPRA, *Blanchard*.

Chalcolampra, Blanch., Voy. Pôle Sud, iv, Zool. 1853, p. 328; Baly, Trans. Ent. Soc. Lond. (n. s.) iii, 5, 1855, p. 180, pl. 14, f. 4 *a*, *b*, and (3) iv, 2, 1867, p. 281; Chapuis, Gen. Col. x, 1874, pp. 423, 425 (pars); Jacoby, Notes Leyd. Mus. vi, 1884, p. 26; Jacobson, Hor. Ross. xxxvi, 1901, p. 89.

GENOTYPE, *Chalcolampra convexa*,* Blanchard 1853 (Tasmania).

Most of the insects put under this genus are Australian. From

* Generally regarded as a synonym of *ænea*, Boisduval 1835.

our faunistic limits only two species have been collected. They are elongate, more or less parallel-sided. The head is as broad as the front margin of the prothorax, the eyes are convex, the antennæ are more or less slender. Prothorax quadrate, hardly broader than long; in many of the Australian species longer than broad, in others the convexity is more pronounced; within this genus there is much variation in the form of the prothorax. Scutellum narrow and insignificant. Elytra punctate-striate, slightly widened behind. Anterior coxal cavities closed. Claws appendiculate.

Range. Australia, Tasmania, New Zealand, China, Malay Peninsula, Ceylon, Sumatra, India, Burma, Andaman Islands.

Key to the Species.

Elytra with roundish patches of lighter colour on a darker background	*Ch. octodecimguttata*, F., [p. 87.
Elytra with lighter-coloured patches having much darker centres	*Ch. dipa*, sp. n., p. 89.

56. Chalcolampra octodecimguttata, *F.*

Chrysomela octodecimguttata. F., Syst. Ent. 1775, p. 100; id., Spec. Ins. i, 1781, p. 123; id., Mant. i, 1787, p. 70; id., Ent. Syst. i 1792, p. 322; id., Syst. El. i, 1801, p. 439; Gmelin, in L., Syst. Nat. ed. xiii, i, 4, 1790, p. 1676; Donovan, Epit. Ins. N. Holl. 1800, pl. 2, *f**; Boisd., Voy. 'Astrolabe,' Col., 1835, p. 575; Baly, Trans. Ent. Soc. iii, 5, 1855, p. 186, and (3) iv, 2, 1867, p. 281.

Body elongate, parallel-sided. Ground-colour of head and pronotum light yellow-brown; that of the elytra varies from piceous or black, generally round the margins, to red-brown on the greater portion of the disc. The head has a black patch on the vertex, the pronotum a group of three or five roundish black spots on the middle, of which the two front ones are larger and each is formed by the confluence of two patches; there is a great deal of variation in the pronotal markings. Scutellum black. Each elytron on a background of darker colour has the following lighter, yellow-brown, roundish spots: in a longitudinal line between the suture and the middle, four, one basal, the second pre-median, the third post-median and the fourth on the point where the elytron slopes down towards the apex; in a second parallel longitudinal line, between the middle and the outer margin, a series of four similar spots which are situated respectively nearly parallel with, but slightly in front of, those of the first series. The underside has a background of dark brown colour interspersed with much lighter yellow-brown and in places with black, but the colouring is very variable.

Head broad; eyes convex; interantennal space deeply and longitudinally excavated in the middle, the areas round the excavation convex; upper surface finely and sparsely punctate. Antennæ passing a little beyond the base of the pronotum; first segment club-shaped, second small, rounded, third and fourth

almost equal to each other; from the fifth to the eleventh the segments are elongate, slightly thicker, sparsely covered with hairs, and piceous or black. *Prothorax* quadrate, almost as broad as long, narrower than the base of the elytra; front margin widely and feebly emarginate, base straight but oblique from the middle to the posterior angles, sides almost straight except in front, where they are slightly convex, anterior and posterior angles slightly greater than right angles; upper surface gently convex from side to side, and very finely and uniformly punctate. *Scutellum* narrow, smooth, shining and impunctate. *Elytra* almost parallel-sided, slightly widening behind, punctate-striate; on each elytron there are at the base (including a long scutellar row and the extreme

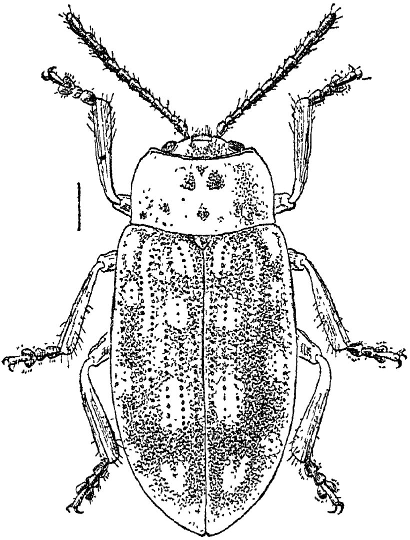


Fig. 31.—*Chalcolampra octodecimguttata*, Fabr.

outer marginal row) eleven series, but across the middle (counting from the suture) after the fifth row the punctures of the sixth, seventh and eighth rows become a little irregular; all the series converge and tend to become obliterated towards the apex; interval between the tenth and the extreme marginal series broader than the others. *Underside* shining, the abdominal sternites with a few scattered punctures; anterior coxal cavities closed; claws broad at the base, divaricate, and cut in at the middle.

Length, 5–7 mm.

CEYLON: Matale, 29. vi. 1919 (*R. Senior-White*); Peradeniya, 26. viii. 1914 (*R. Rutherford*). BURMA: N. Chin Hills. SOUTH INDIA: Nilgiri Hills (*G. F. Hampson*). Originally described from

AUSTRALIA, also known from MALACCA, PULO PENANG, and CHINA.

Type probably in the Copenhagen Museum.

57. Chalcolampra dipa*, sp. nov.

Body elongate. General colour shining brown with black marks on the head and pronotum and with a pattern on the elytra, as follows: a large ill-defined patch on the vertex of the head; on the pronotum a group of three roundish marks situated in the middle, of which the single hindmost one is obsolescent; scutellum black; elytra, on a general ground-colour of dark red-brown there is a pattern of patches of light brown, several of which assume definite shapes, enclosing in their centres smaller dark brown patches; on each elytron, parallel to the suture, a longitudinal series of five, the first close to the suture at the base and behind it the second, which is larger and has an obsolescent elongate, dark streak in the centre, and which, expanding in front, forms a loop joining the first in a broad patch which covers a certain part of the basal area; the third, an oval patch, is situated behind the second; the fourth is at that point where the elytron slopes down towards the apex, it encloses a dark brown patch, is more or less pointed at the posterior end, sending off an erect arm from its front end; the fifth is at the sutural angle; the humerus is dark red-brown; from the humerus to the post-median area there is a large and elongate lighter yellow patch which extends right to the margin and along it to the anterior lateral angles of the elytron; this large light area contains three red-brown patches, the hindmost of which is the largest, all being situated within the last but one row of punctures; and finally, on the bend of the elytron towards the apex, is a pear-shaped patch enclosing a red-brown one in the middle. *Underside* uniformly bright brown. The colour-scheme may be either considered as produced by an inclusion of red-brown colour on a lighter background or *vice versâ*.

Head broad, with vertex convex, finely punctate; interantennal space with a deep semicircular channel separating the epistome from the rest of the surface; eyes convex. Antennæ extending a little distance beyond the base of the pronotum, slender, sparsely covered with hairs, black except the underside of the four basal segments; first segment club-shaped, second small, rounded, third and fourth almost equal to each other, fifth longer than each of the previous ones; the following segments are elongate and of similar dimensions. *Prothorax* quadrate, almost as long as broad, or about one-half millimetre broader than long, front margin very gently concave, base very gently sinuate on either side, sides almost straight, bending inwards at the anterior and posterior angles, all of which are rounded; upper surface gently convex and very finely punctate. *Scutellum* small, triangular, smooth, shining

* Sanskrit, meaning "island."

and impunctate. *Elytra* broader than the prothorax; punctate-striate; on each elytron, at the base, including the scutellar row and the extreme marginal row, are eleven series; counting from the suture across the middle, between the fifth and tenth rows the punctures become irregular; towards the apex the punctures are feebler; the interval between the tenth and the extreme marginal rows is broader than the others. *Underside* almost impunctate except for a few scattered punctures; anterior coxal cavities closed; claws broader at the base and cut in the middle.

Length, 6 mm.

ANDAMAN ISLANDS (*Roepstorff*).

Type in the British Museum. Described from one example.

Genus **PSEUDOLINA**, *Jacoby*.

Pseudolina, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 252.

GENOTYPE, *Pseudolina indica*, Jacoby 1896 (India).

Body elongate-ovate, apterous. Antennæ filiform; terminal segment of maxillary palpi as long as the preceding one, truncate at the apex. *Prothorax* quadrate, narrowed behind, the sides nearly straight. *Scutellum* twice as broad as long. *Elytra* elongate, slightly widened at the middle, much narrowed behind, irregularly punctured, their epipleura broad, not furnished with hairs. *Underside*: legs rather slender; tibiæ dilated towards the apex, not channelled; the first segment of the posterior tarsi slightly longer than the following one; claws simple. Prosternum narrow, elongate; mesosternum of somewhat similar shape, slightly raised behind; metasternum scarcely longer than the prosternum. Anterior coxal cavities closed.

Range. India: United Provinces.

Key to the Species.

Larger (8 mm.); entirely metallic greenish or brownish-æneous	*P. indica*, Jac., p. 90.
Smaller (5 mm.); shining dark brown with bluish tinge	*P. rama*, sp. n., p. 92.

58. **Pseudolina indica**, *Jacoby*.

Pseudolina indica, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 253.

Colour entirely metallic greenish or brownish-aeneous; antennæ black.

Head: surface uneven, with a few scattered punctures, in some individuals more numerous than in others; the area in front of the centre deeply depressed, the depression containing the transverse impression which separates the clypeus; eyes obliquely placed, elongate, convex. Antennæ nearly extending to the

middle of the elytra in the male, the two basal segments more or less brownish; first segment short and much dilated round the circumference, second short, third somewhat longer than fourth, which is almost as long as the fifth, the seventh to eleventh segments more or less of similar structure and size and more hairy than the basal six. *Prothorax* a little broader than long, the greatest width a millimetre greater than the length, narrowed towards the base and widened in front, where the angles are broadly rounded, posterior angles a little greater than right angles, ending in a blunt point, sides nearly straight, posterior

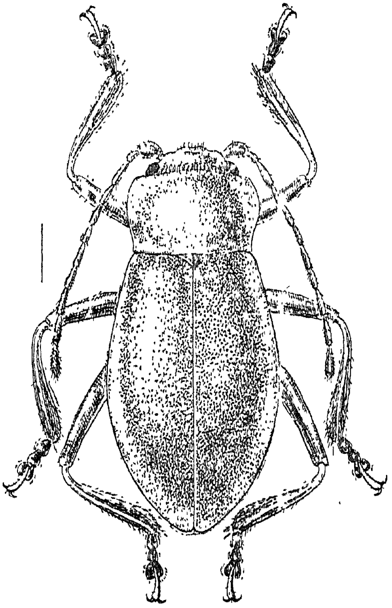


Fig. 32.—*Pseudolina indica*, Jacoby.

margin almost straight; upper surface rather convex, finely, irregularly and not very closely punctate. *Scutellum* narrowly transverse, its apex pointed, the surface impunctate. *Elytra* elongate, widened at the middle, strongly pointed towards the apex, finely and irregularly punctate, the interstices and the surface generally traversed by fine lines. *Underside*: prosternum finely rugose, sparsely covered with hairs.

Length, 8 mm.

UNITED PROVINCES (the label bears the letters "N.W.P.," denoting the older name of the region, *i. e.* North-West Provinces). *Type* in the British Museum.

59. **Pseudolina rama**, sp. nov.

Body oblong, narrowed behind. Colour shining dark brown with a bluish tinge.

Head large, broad, sparsely and finely punctate on the central area and on the clypeus, more closely on the vertex and on the lateral areas. Antennæ long and slender, more than half the length of the body, sparsely covered with fine whitish hairs; first segment thickened, second small, almost globular, third elongate, fourth and fifth each shorter than third, from the sixth onwards the segments become slightly thicker and opaque. *Prothorax* as broad as long, convex, broadened in front, narrowed behind, front and basal margins straight, sides slightly convex in front of the middle, anterior angles rounded and posterior right angles; upper surface uniformly and fairly closely covered with fine punctures. *Scutellum* triangular, much broader than long, smooth and impunctate. *Elytra* slightly broader at the base than the prothorax, smooth, fairly closely covered with fine punctures; very fine lines joining puncture to puncture can be seen, but this striolation is without any regularity or uniformity. *Underside* finely punctate, each puncture bearing a fine silvery hair; the punctures are more crowded on the sides of the abdominal sternites. As compared with the size of the insect the legs are long; femora thicker in the middle.

Length, 5 mm.; *breadth*, 3 mm.

UNITED PROVINCES: Dehra Dun.

Type in the Indian Museum, Calcutta. Described from one example.

Genus **POTANINIA**, *Weise*.

Potaninia, Weise, Hor. Ross. xxiii, 1889, p. 603.

GENOTYPE, *Potaninia polita*, Weise 1889 (China).

Body elongate-ovate, convex, shining. The apical segment of the maxillary palpi conical and pointed. Antennæ filiform, the segments of almost equal thickness throughout, about a millimetre shorter than the length of the body. Eyes convex. Mandibles large and strong. Prothorax subparallel, quadrate, slightly broader than long, and at the base almost as broad as the base of the elytra. Elytra slightly broadened behind the base, then parallel and somewhat narrower at the apex, punctate, the punctures arranged in rows near the suture and near the outer margin, while those in the middle are confused; epipleura without cilia-like bristles on the inner margin. Anterior coxal cavities closed. Prosternum broad, metasternum bordered all round with a deep furrow. The third (bilobed) segment of the tarsus entire; claws simple throughout.

Range. Eastern Himalayas, Assam, China.

No key to the Indian species of this genus is given, since I believe that only one is really known from the region under review

and that the second species enumerated below, *P. collaris*, Weise, will prove to be a synonym of the first, *P. assamensis*, Baly. As, however, I have not seen the type of *P. collaris*, I give a translation of Weise's description. For the same reason Baly's description of *Entomoscelis metallica* is cited below, though this also is probably a synonym of *Potaninia assamensis*.

60. Potaninia assamensis, *Baly*.

Entomoscelis assamensis, Baly, Cist. Ent. ii, 1879, p. 437.
Potaninia assamensis, Jacoby, Ann. Soc. Ent. Belg. xl, 1896, p. 253; Weise, Deutsche Ent. Zeitschr. 1905, p. 216.

Body ovate. Colour above reddish-piceous; underside piceous, shining.

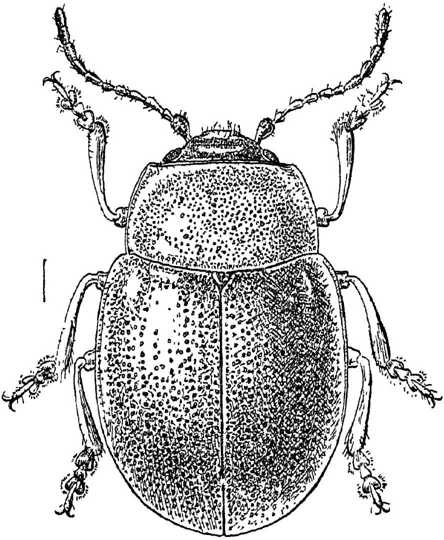


Fig. 33.—*Potaninia assamensis*, Baly.

Head: clypeus more punctate than the rest of the surface, which is only sparingly impressed with fine punctures, Y moderately impressed, the vertical line being almost obsolete towards the vertex. Antennæ rather slender, more than three-fourths the length of the body. *Prothorax* nearly twice as broad as long, sides rounded, nearly straight and parallel behind the middle, hind angles acute, anterior ones subacute; upper surface convex, smooth and shining, disc rather sparingly impressed with minute punctures. *Scutellum* impunctate, broadly triangular with apex rounded. *Elytra* broadly oblong-ovate, convex, impressed with

very fine punctures irregularly arranged in longitudinal series, which are difficult to count.

Length, 7–8 mm.

ASSAM (*Chennell*). DARJEELING: Lebong, 5000 ft., ix. 1908, 29 specimens (*Lefroy*, Pusa Coll.).

Type in the British Museum.

In the original description Baly writes about the prothorax: "impressed on either side near the anterior angle with a shallow fovea." I have examined all the specimens, including the type, in the British Museum, but I cannot find a trace of the shallow fovea.

61. Potaninia collaris, *Weise.*

Potaninia collaris, Weise, Deutsche Ent. Zeitschr. 1905, p. 216.

Underside fuscous, antennæ and legs black, upper surface very shining, brown. Prothorax slightly transverse, sparsely punctate, sides subparallel. Elytra finely punctate, the punctures more or less arranged in rows. Length 5·5 mm.

This species can be recognized by its proportionately large prothorax, which is scarcely half broader than long, with the sides almost parallel; the prothorax is rectangular in shape, being as broad at the large, almost right-angled anterior angles as at the posterior ones, and only very feebly rounded between them *. The elytra are as broad at the base as the base of the prothorax, up to the middle slightly broadened, then for a little distance almost parallel, and after that quickly narrowing, while the apex is narrowly rounded. The humerus is the same as in the other species, being sharply cut off on the inner side †.

DARJEELING (*Frühstorffer*).

The above is a translation from the original description in Latin and German. I have not been able to recognize this species, the type of which I have not seen. But I have before me nearly 30 specimens of a *Potaninia* from Darjeeling, which I have referred to the preceding species, *P. assamensis*, after comparison with the type thereof, as I cannot discover any substantial difference between them. I have practically no doubt in my mind that *P. collaris*, Weise, is a synonym of *P. assamensis*, Baly. The differences pointed out by Weise may well fall within the range of individual variation.

Genus ENTOMOSCELIS, *Chevrolat.*

Entomoscelis, Chevrolat, Dict. Univ. Hist. Nat. iii, 1843, p. 656, and v, 1844, p. 335.

No description of this genus need be given here, nor is it included in the key of genera on pp. 16–17; since, as already explained, I believe that the single Indian insect referred to it,

* dazwischen nur ganz unbedeutend gerundet.

† innen kräftig abgesetzt.

E. metallica, Baly, will prove to be a synonym of *Entomoscelis assamensis*, Baly (now known as *Potaninia assamensis*, see above, p. 93). If this is so, no true *Entomoscelis* has yet been found within our geographical frontiers. As, however, for reasons explained below, I have not seen the type of *E. metallica*, Baly's description of that insect is here cited.

62. **Entomoscelis metallica**, *Baly*.

Entomoscelis metallica, Baly, Ent. Month. Mag. xxv, 1888, p. 85.

"Oblongo-ovata, valde convexa, picea, nitida, corpore superiori pedibusque cupreo nitentibus; thorace convexo, distincte sed tenuiter punctato; elytris seriato-punctatis, punctis in striis inordinatis ad apicem confuse, dispositis. Long., $3\frac{1}{2}$–4 lin.

"*Hab.* Sikkim, Teste Valley, 2000–4000 ft.

"Labrum piceo-fulvous. Thorax nearly twice as broad as long; sides nearly straight and parallel behind the middle, obliquely converging towards the apex anteriorly; disc convex, finely but distinctly punctured, the punctures irregularly congregated on the surface. Elytra scarcely broader than the thorax, oval, strongly convex, finely seriate-punctate, the punctures placed irregularly on the striæ, the latter lost before reaching the apex of the elytra.

"Very similar in appearance to *E. assamensis*, mihi (Cist. Ent. ii, p. 437), separated from that species by the stronger metallic tint of the upper surface and legs, by the larger size, and by the more regularly punctured elytra."

The type of *Entomoscelis metallica* should be in the Indian Museum, Calcutta, where, I am given to understand, it cannot be traced. But, as stated above under *Potaninia*, I have before me about thirty specimens of a species from Darjeeling district which is very similar to *Potaninia* (Baly's *Entomoscelis*) *assamensis*, Baly, and in this long series I find that the three characters by which Baly separates his *Entomoscelis metallica* from his *E. assamensis* are variable; some of the specimens are small and some attain the length of $8\frac{1}{2}$ mm.; some are more metallic than others, and the punctures tend to form rows, more so near the base than near the apex. These characters are not incompatible with *Potaninia assamensis*. Judging from other species of the genus *Entomoscelis* that I have seen in the collection of the British Museum, I believe that this genus has not yet been found within our faunistic area. From these considerations I am inclined to regard *Entomoscelis metallica*, Baly, as a synonym of *Potaninia assamensis*, Baly.

Genus **APAKSHA**, nov.

Genotype, *Apaksha himalayensis*, sp. nov.

Body ovate, constricted at the junction of the prothorax and elytra, widened in the middle and somewhat narrowed behind;

elytra convex. *Head* large, quadrate, as broad as the width of the front margin of the prothorax; eyes convex; antennæ fairly long, the segments moderately stout, the first two swollen. *Prothorax* broader than long, anterior and posterior margins almost straight, anterior lateral angles rounded, posterior more or less acute, upper surface convex. *Scutellum* sharply triangular, broader than long. The two *elytra* are not joined together, but can be separated; their surface is confusedly punctate. *Hind wings* absent. *Underside*: anterior coxal cavities almost closed; prosternum truncate behind; mesosternum small. The third segment of the tarsi is undivided along the middle, and the claws are not split.

Range. The Himalayas at a high altitude.

The name *Apaksha* is derived from Sanskrit, and means "without wings." This insect bears a superficial resemblance to certain members of the Central Asiatic genus *Xenomela*, Weise.

63. **Apaksha himalayensis**, sp. nov.

Subnitid, entirely black, with legs sometimes pitchy-brown.

Head large, broad, with the surface rugose, strongly and not

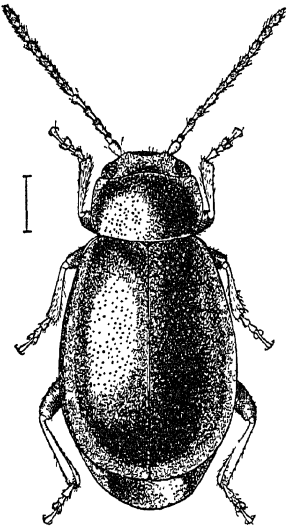


Fig. 34.—*Apaksha himalayensis*, Maulik, ♀.

very closely punctate; in some examples there is a shallow longitudinal median depression; interantennal space with a transverse, strongly impressed line; the whole surface is sparsely covered with fine hairs. Antennæ fairly long and stout, reaching the middle of

the elytra; first segment large, thickened, second much smaller, globular, third elongate, slightly longer than fourth, fifth also slightly longer than fourth; sixth somewhat shorter than either the preceding or the following segment; the rest of the segments are almost equal, the last being pointed; the whole antennæ are sparsely covered with fine hairs. *Prothorax* broader than long, narrowed at the base, whence the sides are gradually widened to the anterior angles, which are rounded; posterior angles more or less acute; anterior and posterior margins almost straight; surface uniformly convex from side to side and covered with strong punctures, which are more thinly distributed on the middle than on the lateral or basal parts. *Scutellum* small, insignificant, sharply triangular, much broader than long. *Elytra* narrowed at the base, broadened and uniformly rounded in the middle, narrowed behind; surface convex and confusedly impressed with strong but small punctures, which are not closely placed; in some specimens the surface is somewhat rugose. *Underside* punctate and sparsely covered with fine hairs; anterior coxal cavities almost closed. First segment of the tarsi almost as broad as the third, which is undivided longitudinally along the middle; claw-segment strong, projecting much beyond the third segment; claws not split.

In the females the abdomen projects beyond the apex of the elytra.

Length, 5–8 mm.

HIMALAYAS: Barphu, Gori Valley, 11,500 ft. (*H. G. Champion*).

Type in the British Museum. Described from 22 examples.

Subfamily HALTICINÆ.

The HALTICINÆ comprise a group of phytophagous Coleoptera popularly called "flea-beetles" owing to their extraordinary power of jumping*. They can be distinguished by the following characters: (1) the insects are plant-feeders both in the larval and adult stages; (2) in correlation with the jumping power of the insect the femora of the hind legs are much thickened; this character varies to a certain extent, for in some genera the thickened condition can hardly be said to be pronounced, but in all cases the hind femora are thicker than those of the first two pairs of legs; (3) the antennæ are always placed between the inner margins of the eyes and never *below* their front or outer edges, but between the limits of the inner margins the position of the points of insertion of the antennæ varies, so that they may either

* It is hardly necessary to state that, though the flea-beetles and fleas both possess this power, no close relationship between the two groups is thereby indicated. Similar names for these beetles occur in at least one other European language, namely German, in which they are known as "Erdflöhe" (earth-fleas) or "Flohkäfer" (flea-beetles).

be inserted close together, or may almost touch the eyes (see fig. 92); (4) the anterior coxæ are not conically prominent at the apex, as they are in the GALERUCINÆ, a group of which the HALTICINÆ have hitherto formed a part.

External Form and Structure.

The members of the present subfamily are generally small in size (at least within our faunistic limits), varying from 2 mm. to 17 mm., the latter magnitude being exceptional. The coloration is generally dull, very rarely brilliant or metallic. The *head* is usually as broad as the pronotum, and sometimes has the mouth-parts exserted, but taken as a whole it is not large; in form it is transverse and more or less rounded. In many of these insects the front is differentiated from the vertex by a transversely impressed line, which may be rounded or angled in the middle, the impression varying in depth. The *antennæ* do not present a great variety of form. Normally each is composed of eleven segments; in the genus *Psylliodes*, Latr., the number is ten, while in *Nonarthra*, Baly, it is reduced to nine. In another genus of CHRYSOMELIDÆ, *Platypria*, Guér., belonging to the subfamily HISPINÆ, the number of segments is also nine, and there it can be recognized that the last segment is formed by the fusion of three segments. Neither in *Psylliodes* nor in *Nonarthra* can any such trace of the process of reduction be recognized. In a large number of cases the antennæ are somewhat thickened towards the apex, but in some forms they become slightly thinner. In length they vary, reaching in some species only to the base of the pronotum, in others as far as a little beyond the apex of the elytra, but never attaining such great length as is sometimes found amongst the GALERUCINÆ. In our region no genus has yet been found with flabellate or pectinate antennæ, though such a condition does occur elsewhere among the HALTICINÆ. The relative lengths of the five or six basal segments have a taxonomic value. The interantennal space is generally narrow and contains a deep longitudinal impression, on each side of which there is a longitudinal elevated ridge, which may slightly expand towards the vertex or may vary in height, etc.; these ridges are referred to in the descriptions as *frontal elevations* or *carinæ* (see fig. 62), and they have been found useful, in combination with other characters, in separating genera and species; sometimes they are entirely absent. The *eyes* are rounded, oval, and generally convex, and are situated at points widely separated from each other, except in the genus *Paradibolia*, where they are closely approximated at the vertex, being only separated by a thin strip (see fig. 110). The *mouth-parts* consist of the pieces usually present in adult beetles, labrum, mandibles, maxillæ each with a four-segmented palp, and labium with a pair of three-segmented palpi; the relative length, form and thickness of the apical and penultimate segments of the maxillary palpi have afforded, in some cases, characters which have

been used in separating species. The *pronotum* is usually broader than long, with the surface more or less convex; a transverse depression anterior to the basal margin, bounded on each side by a short longitudinal impression (see fig. 88), has classificatory value. In the genus *Liprus*, Motsch., the prothorax is greatly constricted behind (see fig. 49), its shape recalling that of the genus *Lema*, F., belonging to the subfamily CRIOCERINÆ of CHRYSOMELIDÆ. The anterior lateral angles are often thickened, each bearing a fine seta, and are sometimes slightly expanded and sometimes obliquely truncate. In a great number of cases the posterior lateral angles also are provided each with a fine seta (see figs. 120, 123). The *scutellum* is small but always visible, triangular or ovate in shape and not very variable. The *elytra* are never short or reduced, as occurs in some GALERUCINÆ; they may be

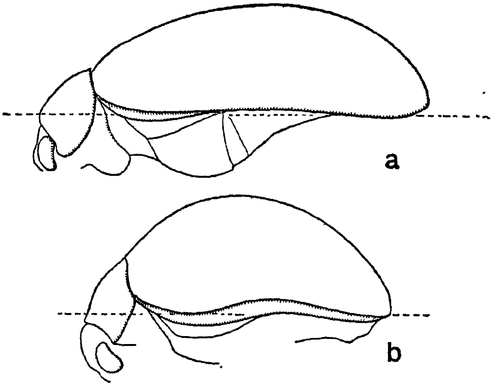


Fig. 35.—Profile outline of, *a*, *Hyphasoma submetallica*, Jac.; *b*, *Orthaca viridipennis*, Jac.

parallel-sided, with the apex rounded or pointed; sometimes they are strongly convex, and the degree of convexity may be taken advantage of in separating genera; their surface is often confusedly punctate, and in many genera the punctures are arranged in longitudinal rows or striæ; the interstices are smooth and the surface never tuberculate or rough. In most HALTICINÆ the *hind wings* are present under the elytra; their absence is exceptional, and in no genus known from British India has the wingless condition yet been noticed.

The *underside* in this subfamily offers many characters which are useful for comparative study, and hence have been frequently used in determining relationships. The episternum generally assumes a quadrangular form, being broader than long and delimiting the anterior edge of the front coxal cavity; this character is employed in doubtful cases to differentiate between

the HALTICINÆ and the EUMOLPINÆ. The prosternum itself is always more or less broad, except in one or two cases, for instance, in the Indo-Malayan genus *Sphærometopa*, where it is almost concealed from view; the apex of the prosternum, when it is not rounded or truncate, sends off a thin piece towards the epimeron, the inner projection of which it meets, thus closing the front coxal cavity at its posterior edge (see fig. 52); this character is very useful in grouping the genera. The mesosternum in a large majority of HALTICINÆ is oblong, triangular or quadrangular; in some groups it is not visible at all, the pro- and metasterna meeting each other. The position of the hind edge of the prosternum relative to the mesosternum is of taxonomic value. The epipleura of the elytra are generally broad at the base, narrowing towards the apex; in many cases they are not continued to the apex, but terminate some distance before it; sometimes they are as broad at the base as towards the apex, while in the genus *Hyphasis* they attain a relatively enormous breadth (see fig. 58). In correlation with the leaping habit the structure of the *legs* has undergone suitable modifications. The hind femora are thickened and very often channelled underneath for the reception of the tibiæ when in repose; the latter are often short, since long tibiæ are unsuitable for jumping. In some GALERUCINÆ there is a distinct thickening of the hind femora, but the corresponding tibiæ are long and slender. The tibiæ are similarly channelled on the underside, and in many cases are provided with a spur or spine at the apex (see figs. 48, 59); sometimes they are broadened and more or less flattened towards the apex, with a row of spines on each side. Each tarsus is apparently composed of four segments, the basal one more or less triangular, the second less so, the third broad and bilobed, the fourth or claw-bearing segment long and slender, projecting much beyond the bilobed segment. But these parts are sometimes greatly modified, *e. g.* the first segment may be more than half the length of the tibia, as in *Longitarsus*; the second segment is always shorter than the first, while the third segment, even when modified, retains to a certain extent its bilobed form. The usual felt covering on the underside of the tarsi also undergoes corresponding modifications. In some genera, popularly called "bladder-clawed Halticines," the claw-segment is swollen at the apex (see fig. 59). The point of articulation of the tarsus with the tibia is generally at the apex of the latter, but sometimes it is far away from the apex, as in the genus *Psylliodes*. It will be noticed that all these modifications are in keeping with the type of mechanism, leverage, etc., necessary for the act of jumping. The claws are strong, prominent and very often have a little projection on the underside (such claws are called appendiculate); sometimes they are bifid, and rarely simple; in the case of the "bladder-clawed Halticines" just mentioned, the claws are invisible when the tarsus is viewed from above.

Notes on Life-histories and Larvæ.

Remarks on the life-histories of several species are given here; the first four species relate to India, the remainder to various other countries. Following these notes is a section containing more detailed descriptions of the larvæ of several species, and then a list of species of economic importance.

India.

Clitea picta, Baly.

The following notes were made by C. S. Misra and T. Bainbrigge Fletcher at Pusa (Agric. Res. Inst. Pusa, Bull. no. 89, 1919, pp. 22–23: and C. F. C. Beeson, 'Indian Forester,' Allahabad, xiv, 1919, pp. 312–323):—

The larvæ burrow in the midribs of leaves, tender shoots, spines, axils of branches and even occasionally in the young setting fruits, whilst the adult beetles eat holes in the leaves, which are often badly riddled.

The larva is about 8 mm. long and about 1·5 mm. broad, dorsally convex and ventrally compressed, of a dull-brown or orange-yellow colour, with a flattened brownish head. Prothorax with a brownish shield medially divided. Three pairs of jointed legs. The eighth abdominal segment with a small dark patch above between the spiracles. Anal plate dark, large, somewhat concave above. Anal segment with a pair of ventral fleshy processes, which assist in locomotion. Spiracles rounded, dark rimmed. The larva bores longitudinally inside the twigs, etc., the bored parts swelling to some extent and the position of the burrow being marked by a transparent resinous exudation.

Pupation takes place either within the larval burrow or in the soil. In the case of some grubs kept in the Insectary in a glass dish with about an inch of moist earth, when full-fed they left the stems and went down into the earth until they reached the bottom of the dish, where they formed rounded cocoons of earth with a smooth interior. From three grubs which went into the earth on 10th June, 1908, one beetle emerged on the 15th and two on the 16th June.

Longitarsus nigripennis, Motsch.

The following is an abstract from notes made by Mr. T. V. Ramakrishna Ayyar on the life-history of this beetle, published in the 'Proceedings of the Third Entomological Meeting at Pusa,' 1919, vol. iii, p. 925:—

This insect does damage to cultivated black pepper (*Piper nigrum*) in the pepper-growing tracts in North Malabar. The eggs are laid singly, each being carefully thrust and glued into the tissue just underneath the skin of the green pepper-berry, usually near the attachment of the berry to the spike. Only one egg is deposited in each berry. To find the egg one has to open the

skin of the berry very carefully in very thin slices. The egg is ovoid in shape and measures 1·5 mm. in length; it has a pale brownish colour. The larva is pale to cream-white in colour with the head and prothorax dark; it is comparatively short and stout.

The larva feeds on the contents of two or three berries for about forty or fifty days, when it is full-fed. It then pupates by dropping down and entering the soil to a depth of about two or three inches. It builds an oval cocoon of soil. The pupa is pale whitish in colour. In captivity the pupal stage lasts for ten days. The adult beetle after emerging from the pupal case remains in the soil for a day or two before coming to the surface. The adult feeds voraciously on the tender pepper leaves, biting numerous little holes in them. There are at least two generations in the year, one generation of beetles emerging in October and another in January. At the beginning an infested berry shows a pale, sickly yellowish colour and a minute hole through which excrement may be seen thrown out. When the larva has almost eaten away the contents of a berry, its presence is indicated externally by a darkish colour instead of a healthy green. The presence of a group of two to four dark-coloured berries in a spike of pepper reveals the attack of the larva.

Luperomorpha weisei, Jac.

In August 1900, Mr. W. H. P. Driver, of Purulia, sent to the Indian Museum some Chrysomelid beetles which were reported to be destroying all his mango-trees. The original locality from which this species was first obtained is Ranchi (Indian Museum Notes, vol. v, p. 125).

Podontia quatuordecimpunctata, L.

This beetle occurs in India on *Spondias mangifera* in the months of July and August, when the tree is in full foliage, but disappears in October (Indian Museum Notes, vol. iv, p. 68).

In the Federated Malay States it has been found on *Spondias dulcis*, and an account of the life-history of the insect appeared in the 'Agricultural Bulletin of the Federated Malay States,' 1921, vol. ix, no. 3, p. 192, under the names of G. H. Corbett and Mohamed Yusope. The following is a synopsis of this account:—

The damage done is very serious, the trees being almost entirely defoliated. The eggs are laid from April to August, in batches on the underside of the leaves, particularly near the tips. The female builds up the cluster of eggs by arranging them in circular series, in which each egg stands perpendicular to the surface of the leaf and touches the next one; another layer is placed on the top of this (although the arrangement of the eggs may not be so regular in this layer), and so on. The number of eggs in each mass varies from 18 to 64. The eggs are oval in shape and rounded at both ends, varying from 1·5 mm. to 2 mm. in length and 0·7 mm. to 1 mm. in breadth; at first they are bright yellow

changing later to a dull yellowish-white. The egg-stage lasts from 6 to 8 days.

The newly-hatched larvæ feed gregariously for two or three days, skeletonising the leaves, and afterwards migrating to different parts of the plant, where they commence to eat the entire leaf-substance. The newly-emerged larva is somewhat like a wood-louse in form, and is bright yellow in colour, with a black head. There are six rows of black spots running longitudinally throughout the body; from each of these spots a hair arises. Each of the thoracic segments has a pair of black legs. On the first thoracic segment is situated a black shield which has ten anterior projections. There is a yellowish pseudopod (protrusible sucker) at the anal extremity, provided with projections which aid the larva to adhere to, or clasp, the leaves. The full-fed larva differs from the newly-hatched larva by being greenish in colour and larger in size; it varies from 21·9 mm. to 25·7 mm. in length, and from 7·5 mm. to 8·3 mm. in breadth. The anus is situated just above the base of the protrusible sucker-foot, and by curving the terminal segment of the abdomen upwards, the larva deposits its excrement on its body, whence the excrement is prevented from falling by an exudation from the body. The excreta frequently form a complete covering over the larva. When disturbed the larvæ roll themselves up into a ball somewhat after the manner of a wood-louse. The larval stage lasts from 11 to 18 days.

When full-fed the larva generally enters the soil for pupation. Prior to its transformation, it makes an oval cocoon of particles of earth, within which it pupates. The average length of these cocoons is 18 mm. and the average breadth 12 mm. The depth at which the cocoons are found varies from two to six inches according to the condition of the soil. Occasionally cocoons are found underneath rubbish and pieces of wood. The pupal stage lasts from 14 to 29 days.

The adult beetles as well as the larvæ avoid sunlight, and are usually found on the under surface of the leaves. They feed intermittently both by day and by night. They do not fly readily, and even when thrown into the air frequently make no attempt at flight. When disturbed on the leaves they usually drop to the ground, and for a short time feign death. The life of the female beetle varies between 53 to 168 days. The cycle from egg to pupal stage covers a period varying from 31 to 55 days.

England.

Phyllotreta nemorum, L. Turnip Flea-beetle.

The following is taken from Rev. Appl. Ent., ser. A, vol. iv, 1916, p. 108, where will be found an abstract of an article on "Flea-beetles" in the Botanical Journal, London, iv, no. 4, Jan. 1916, p. 49:—

The adult beetles hibernate during the winter under the bark

of trees, fallen leaves, etc., emerging in early spring. Pairing occurs from March to October, and the eggs are laid beneath the epidermis of charlock or other Cruciferous plants. The larvæ hatch in from eight to ten days, and tunnel in the mesophyll. They pupate in the soil, the pupal stage lasting about two weeks. The number of generations produced in one season varies from three to six, according to weather conditions. The adults cause serious damage to root crops, young seedlings, and to the mature leaves of cabbage, horse-radish, rhubarb, etc.

Haltica oleracea, L. Cabbage Flea-beetle.

The following information is taken from the same source as in the preceding case:—The eggs are laid on the surface of the leaf, and the larvæ are not leaf-miners like those of the genus *Phyllotreta*. Pupation takes place about two weeks after hatching. There are usually five generations in the year. The adults feed upon wild and cultivated CRUCIFERÆ and upon *Epilobium* and *Œnothera*. In controlling this and the preceding species, it is important to keep crops free from weeds, especially CRUCIFERÆ. Spraying with an arsenical wash has been found useful against *H. oleracea*.

Russia.

Aphthona euphorbiæ, Schrank.

This is a great pest of flax in Russia. N. V. Kurdiumov deals with it in some detail in the Proc. Poltava Agric. Expt. Sta., no. 30, 1917.

The present account is taken from Rev. Appl. Ent., ser. A, vol. xi, 1923, p. 154:—The adults hibernate in turf rather than under fallen leaves. In the spring they migrate to flax fields, which may be some distance away, necessitating the crossing of other fields, in which case they may also be found on *Sisymbrium*, *Euphorbia* and even the leaves of beet. In the early spring they are found in fairly large numbers among the winter-sown grain crops, their numbers on these decreasing simultaneously with a relative increase of those on flax, on which they appear in large numbers by the end of April and beginning of May, a period which coincides with the appearance of the seedlings above ground. The attack of *A. euphorbiæ* on flax at this time is greatly influenced by the prevailing temperature; should the latter favour quick and healthy growth, the flax will be able to withstand and outgrow the injury, otherwise the plants may become stunted and the crop greatly diminished. Fields of widely-spaced rows are generally more likely to be attacked. As a rule only the parts of the plant above ground are injured, though on some occasions the cotyledons that have not yet appeared above the surface are attacked, and this is a most serious form of damage; it occurs in the early spring, and again when the adults enter the soil for oviposition. Under experimental conditions the latter occurs at

the end of April and beginning of May. The eggs are laid in the spaces formed by the cracking of the surface layer of the soil, sometimes on the lateral roots, occasionally on the main roots, or even at a distance of 1–2 cm. from them. The duration of the egg stage varied, according to the temperature, from 11 to 22 days. According to I. M. Krasilshtshik at least 288 eggs are laid by one female under natural conditions. The larvæ feed chiefly on the young rootlets, and pupate in the soil about the beginning of June. The adults emerge during July, and may be found on beet in the vicinity of flax fields, though without apparently causing any appreciable damage, whereas the leaves of *Cirsium arvense* are completely skeletonised. At the time of the flax harvest the flea-beetles disappear from the fields and evidently migrate. The duration of the egg, larval and pupal periods are, respectively, 20, 31, and 19 days, though they vary according to surrounding conditions.

North America.

Epitrix parvula, F. The Tobacco Flea-beetle.

An account of this pest is given by Z. P. Metcalf and G. W. Underhill, North Carolina Agric. Expt. Sta., W. Raleigh, Bull. 239, April 1919; an abstract, from which the following is taken, appeared in Rev. Appl. Ent., ser. A, vol. viii, 1920, p. 231:—

This flea-beetle is one of the worst pests of tobacco in North Carolina. The adults hibernate near the tobacco fields under leaves or grass or in other suitable places, emerging in the spring as soon as any food-plant is available. There are four generations a year, but the stages overlap so much that they cannot be readily distinguished. The eggs, which hatch in about a week, are laid from April to September near the surface of the ground under the tobacco plant. The larvæ feed on the roots of the plant from May to October, and pupate in small cells just beneath the surface of the ground.

The greater part of the damage is done by the adult beetles, which eat holes in the leaves, both in the seed-beds, where it is sometimes impossible to obtain a stand of plants, and after transplanting, when the plants are sometimes killed. The indirect loss due to the subsequent weakening of the plant is still greater, but the direct loss, which alone can be accurately measured, is more than 100 lb. an acre *.

Chætocnema ectypa, Horn. The Desert Corn Flea-beetle.

An abstract, from which the following remarks are taken, is given in Rev. Appl. Ent., ser. A, vol. v, 1917, p. 434, of an account

* Since these paragraphs were in print, there has come to hand a very full account of this pest, by F. S. Chamberlin, J. N. Tenhet, and A. G. Böving (Journ. Agric. Research, Washington, xxix, pp. 575–584, 1924). It contains descriptions and figures of all the stages of the insect, and detailed bionomical studies.

of this insect by V. L. Wildermuth, U.S. Dept. Agric., Washington, Bull. no. 436, Feb. 1917:—This insect occurs in the semi-arid areas of the south-western United States, where it attacks maize, sugar-cane, Sudan grass, wheat, barley and lucerne, its natural food-plants being apparently some of the native grasses. The larvæ attack the plants below the ground, while the adults feed upon the leaves. The eggs are laid at or near the surface of the ground, and hatch in about six days. The larval stage lasts on an average thirty-two days, the larvæ when full-fed pupating in the soil beside the roots. The pupal stage varies in length. The whole life-cycle covers a period of about seven weeks. There are three or four generations in each year. Adults hibernate under rubbish, or about the base of grasses.

West Indies and Central America.

Haltica jamaicensis, Fabr.

The following remarks are gathered from Rev. Appl. Ent., ser. A, vol. v, 1917, p. 560, where an abstract is given of an account of the life-history of this insect:—

This is the largest of the flea-beetles found in Porto Rico, and is at times extremely abundant. It occurs also in Jamaica, Santo Domingo, Haiti, Costa Rica and Cuba. While the favourite food-plants are the common weeds, *Jussiæa leptocarpa*, *J. suffruticosa* and *J. erecta*, it occasionally feeds on garden beans, and might become a serious pest if its food-supply should fail. The eggs, which are laid on the leaves and stems of the plant, number about 520 for each female. They hatch in four to six days, and the young larvæ feed on the foliage, descending to the soil to pupate after the second moult. The prepupal and pupal stages together occupy 11 days, the whole life-cycle requiring 39 days.

Structure of the Larvæ.

Longitarsus ochroleucus, Marsh.

This description is taken from two specimens preserved in alcohol in the collection of the British Museum. They were collected by Mr. H. W. Miles at Kerton, Lincolnshire, on 31 January, 1924. The larva is very narrow and elongate in form, measuring 4¾ mm. in length in alcohol, and 7 mm. after the specimen is cleared by boiling in potash. It is uniformly creamy-white in colour, except the mouth-parts, which, being highly chitinised, are brown. The segments of the body are not well marked, but the small narrow head, the three thoracic segments each bearing a pair of very small legs, and nine abdominal segments can be distinguished. The head is longer than broad and is formed by a chitinised plate, which bends over ventrally on either side; the true ventral surface consists of membrane joining the sinuous edges of the bent chitinised plate. There is a median chitinised support. The mandibles are situated at the

apex, and each has four teeth. The structures that are visible in the present preparation are shown in the figure. At the end of the body there is a ventral process which is probably used in locomotion.

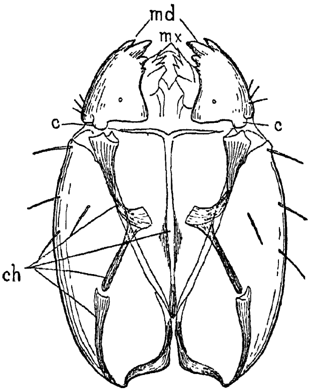


Fig. 36.—*Longitarsus ochroleucus*, Marsh.: head of larva from above; *c*, condyles of mandibles; *ch*, chitinous supports of head; *md*, mandibles; *mx*, maxillæ.

Haltica ampelophaga, Guér.

The following description is drawn up from four examples (Lugano, Switzerland, on hazel, *K. G. Blair*) preserved in alcohol in the British Museum:—The length varies from 5¾ to 6½ mm.

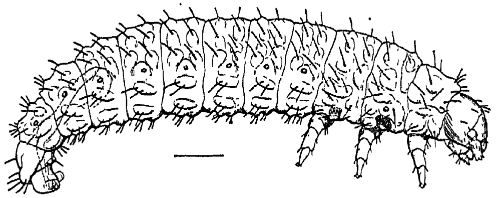


Fig. 37.—*Haltica ampelophaga*, Guér. Lateral view of larva. (A part of the intestine, which was visible in the cleared specimen at the hind end of the body, is shown.)

The colour of the specimens in alcohol is dark brown, the underside being lighter and the head and parts of the legs blackish. The body is slightly bent and somewhat narrowed behind, and consists of thirteen segments, including the head, the three thoracic and nine abdominal segments. The head is formed of a strongly chitinised, hard capsule, narrower than the prothorax, quadrate with front well rounded, viewed from above slightly

depressed on the vertex, sloping in front, and with the upper surface sparsely covered with stiff brownish hairs; antennæ minute, three-segmented; labrum distinct; mandibles four-toothed. The prothorax is broader than the head, its dorsal surface covered with a strongly chitinised transverse plate. The meso- and metathoracic segments are alike, the latter being very slightly broader than the former. There are three pairs of well-developed and strongly chitinised thoracic legs; each leg consists of three segments and ends in a minute but strong claw.

The dorsal and ventral surfaces of the body of the larva bear several longitudinal series of spots and patches arranged as follows: as seen from above there are five longitudinal rows, one median and two on each side; the median row consists of short, transversely elongate patches, there being on each segment two, of which the posterior is smaller than the anterior; the inner and outer dorsolateral rows are composed of round spots; in the inner dorsolateral rows these are arranged somewhat irregularly, the posterior spot on each segment being placed nearer the middle line than the anterior one, while in the outer dorsolateral rows the two spots on each segment are placed one behind the other in a longitudinal series. Thus on the dorsal surface of each segment of the body (except the prothoracic and the anal) there are ten patches, the two transverse median ones and eight round ones placed four on each side. Viewed from beneath each segment (except the anal) is somewhat produced conically on each side, with the apex of the cone truncate and ending in a patch; these patches form on either side of the body the lateral longitudinal series. Finally, on the ventral surface there are five longitudinal rows of patches, the median being composed of a single short, transversely elongate patch on each segment, while the outer series are made up of round spots, regularly arranged, a single spot of each inner and each outer ventrolateral series on either side of every segment; the spots of the outer ventrolateral rows are placed on the apices of slight conical elevations. On the ventral surface, therefore, there are, in each segment, five patches. All the patches, dorsal, ventral and lateral, are only strongly chitinised areas, bearing fine brownish hairs which give the larva the appearance of being sparsely pilose. There are nine pairs of spiracles, one thoracic and eight abdominal. Those of the thoracic pair are situated laterally on the mesothorax. Each abdominal spiracle is placed laterally between the two spots, on each segment, of the outer dorsolateral longitudinal series. The thoracic spiracles are larger than the abdominal. The ninth and anal segments have no spiracles.

Sphæroderma testacea, Fabr.

The following description is taken from two examples in the British Museum preserved in alcohol, one of which is $5\frac{1}{2}$ mm. long and the other 5 mm. :—The larva is elongate and consists of thirteen segments, including the head, the three thoracic, and

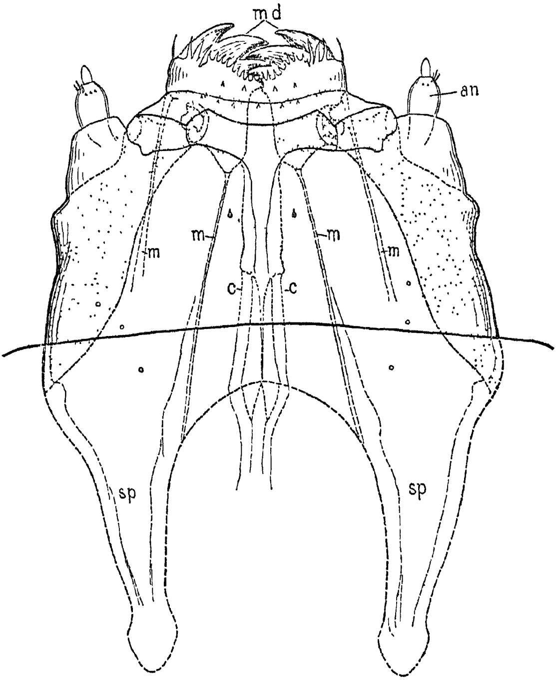


Fig. 38.—*Sphærodermu testacea*, F. Head of larva, dorsal view: the part below the horizontal black line is inserted into the body; *an*, antenna; *c*, chitinous supports of head; *m*, muscular bands controlling mandibles; *sp*, longitudinal spurs inserted into thorax.

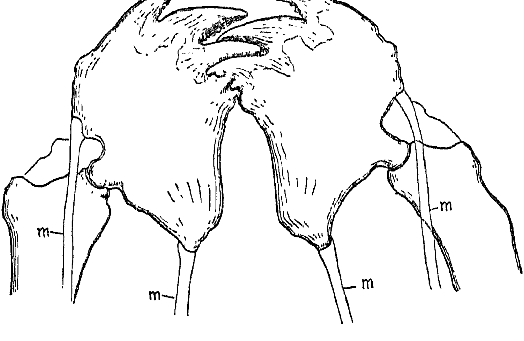


Fig. 39.—*Sphærodermu testacea*, F. Enlarged and deeper view of mandibles of larva; *m*, muscular bands.

nine abdominal segments. All of them except the head and the anal segment are almost of equal breadth. The head is (as seen in an uncleared specimen) much narrower than the first thoracic segment, strongly chitinised and quadrate; in a cleared specimen it is seen to be inserted in the first thoracic segment and to be supported by two long, narrowed spurs, between which is enclosed a deep arch forming the posterior margin of the imbedded portion of the head; at the apex of the arch are three strongly chitinised ridges, one median and longitudinal and the other two placed obliquely on either side of it and tending to meet in front; on either side of this system is seen a sinuous line which forms the internal boundary of the strongly chitinised lateral part of the head. The antennæ are situated at the lateral angles of the anterior margin of the head, each consisting of three segments, namely, a large basal, a more or less ovate median, and a small conical apical segment. The mandibles are large, occupying the middle portion of the front margin of the head; each has three distinct teeth, bent inwards, the inner margin of each tooth being serrated on the dorsal and ventral sides of the mandibles respectively. The front margin of the prothoracic segment is straight and its sides rounded. The mesothorax is larger, with sides broadly rounded. The metathorax is similar to the mesothorax. There are six well-developed legs, each consisting of three segments, the last ending in a minute single claw. Each abdominal segment is much broader than long, with a more or less conical but rounded protuberance on either side; on the ventral side it has a fleshy excrescence of the same form as the segment itself but smaller in size. The anal segment is narrower, rounded and without lateral protuberances, with the anus situated on the ventral side.

In a cleared specimen the larval skin, under a high power, is seen to possess a beautiful pattern of reticulated sculpturing. I am unable to discern the spiracles in the material. The larvæ were found by Mr. K. G. Blair at Midhurst, Sussex, 2. x. 1918, in galleries in leaves of *Centaurea*. A few adult beetles were also found on the plants. The larvæ were killed and preserved 25. x. 1918.

Economic Importance.

The flea-beetles are to be regarded as enemies of mankind, for a large number of them attack crops and cultivated plants, as the following list will show. The list includes also some non-cultivated plants.

Podagrica malvæ, Ill. Crimea. *Althæa officinalis* (marsh-mallow), *A. rosea* (holly-hock) and medicinal plants.

Nisotra uniforma, Jac. S. Nigeria. Cotton.

Clitea picta, Baly. India. *Ægle marmelos* (Indian name, Bael).

Crepidodera helxines, L. Canada. Willow.

Crepidodera cyanescens, Duft. Russia. Aconite.
,, *alpicola*, Ulr. Russia. Aconite.
,, *rufipes*, L. Kentucky, U.S.A.; Europe. Leaves of peach trees; peas.
,, *aurata*, Marsh. England and Continental Europe. Willow.
,, *erythropus*, Melsh. North America. Peach trees.
,, *costatipennis*, Jac. Cameroons. Cacao.
Epitrix subcrinita, Lec. British Columbia. Tomatoes, potatoes.
,, *fuscula*, Cr. Concord, U.S.A. Potatoes.
,, *cucumeris*, Harr. North America. Potatoes, tomatoes.
,, *nigroœnea*, Harr. South America. Leaves of potatoes.
,, *parvula*, F. U.S.A. (Virginia, North Carolina, Florida, etc.). Tobacco.
Systena blanda, Melsh. North America. Melon, potato, carrot, beet, clover, etc.
,, *tœniata*, Say. Virginia. Vegetables generally, particularly maize.
,, *marginalis*, Ill. North America. Forest and shade trees.
,, *frontalis*, F. Toronto, Canada. Potato, beans, young grapes, asters, chrysanthemums.
,, *hudsonias*, Forst. North America. Sugar-beet, potato, maize, beans.
Haltica engströni, Sahlberg. N. Russia, Finland, Sweden. Leaves of *Spirœa ulmaria*.
,, *ampelophaga*, Guér. France, Spain. Grape-vine.
,, *erucœ*, [? F.]. Holland, Russia. Oak, climbing roses, strawberries.
,, *euphorbiœ*, F. European Russia. Flax.*
,, *oleracea*, L. European Russia, England. Cabbages, vines, rape.*
,, *bimarginata*, Say. Maine, U.S.A.; Canada. Alder.
,, *foliacea*, Lec. Arizona, U.S.A. Foliage of apple and grape.
,, *chalybea*, Ill. Ontario, Canada. Grape-vine.
,, *ignita*, Ill. Canada. Strawberry.
,, *probata*, Fall. British Columbia to California. Wild rose, strawberry.
,, *carinata*, Germ. South California. Grape-vine, and a native plant, *Œnothera* (*Pachylophus*) *eximius* (Desert Primrose), a weed of vineyards.

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* Professor N. M. Kulagin, recording insects injurious to cultivated food-plants in European Russia in 1914 (Bulletins of the Moscow Entomological Society, i, pp. 136–161, Nov. 1915), includes *Haltica euphorbiœ*, F., as a pest without actually mentioning the food-plant, but gives as the Russian name of the insect the equivalent of "Flax flea-beetle." He also mentions *Polygonum aviculare*, L., *Epilobium angustifolium*, L., *Œnothera biennis*, L., and *Rumex acutus*, L., as food-plants of *Haltica oleracea*, L.

Haltica corni, Woods. Maine, U.S.A. Dog-wood.
,, *rosæ*, Woods. Maine, U.S.A. Wild rose.
,, *ulmi*, Woods. Maine, U.S.A. Elm.
,, *torquata*, Lec. Maine, U.S.A. Blueberry
,, *pagana*. Australia. Strawberry.
Disonycha glabrata, F. U.S.A. *Amaranthus* spp.
,, *maritima*, Mann. California. Sugar-beet.
,, *varicornis*, Horn. North America. *Opuntia leptocaulis.*
,, *xanthomelæna*, Dalm. North America. Spinach.
,, *triangularis*, Say. North America. Beet.
,, *mellicollis*, Say. North America. Beet.
,, *caroliniana*, F. North America. Beet.
,, *lævigata*, Jac. Jamaica. Maize.
,, *quinquevittata*, Say. Nova Scotia. *Solidago squarrosa.*
Longitarsus parvulus, Payk. Ireland. Flax.
,, *ater*, Leesb. Ireland. Flax.
,, *nigripennis*, Motsch. India. Pepper.
Aphthona flaviceps, All. Poltava, Russia. Flax.
,, *euphorbiæ*, Schrank. Poltava, Russia. Flax.
,, *nonstriata*, Goeze. Russia. Leaves of iris.
Luperomorpha weisei, Jacoby. Bengal. Mango.
Phyllotreta pusilla, Horn. U.S.A. Cabbage, radish.
,, *nemorum*, L. Germany, England, Russia. Soy bean, turnip, hops, peas, vetches, hemp.
,, *sinuata*, Steph. Canada. Cress, radish, turnip, cabbage.
,, *vittata*, F. U.S.A. Radish, turnip.
,, *atra*, F. Denmark, Russia. Turnip, hemp.
,, *schreineri*, Jakobson. Astrachan, Russia. Mustard.
,, *affinis*, Payk. Ireland. Potato.
,, *nigripes*, F. Prussia, Sweden. Peas, vetches, cabbages.
,, *cruciferæ*, Goeze. Prussia. Peas, vetches.
,, *undulata*, Kutsch. Prussia, Russia. Peas, vetches, cabbages.
,, *armoraciæ*, Koch. Russia, Canada. Horse-radish (*Cochlearia*) and other cruciferous plants of economic importance.
,, *vittula*, Redt. Denmark, England, Russia. Spring corn, maize.
,, (?) *sinuata*, Redt. Formosa. Mulberry tree.
Chætocnema hortensis, Geoffr. European Russia. Hemp, cereals.
,, (*Plectroscelis*) *breviuscula*, Fald. Russia. Ears of wheat, cereals.
,, *concinna*, Chevr. (Marsh.). Russia, Ireland, Sweden. Hops, young mangold-wurzel (*Beta*), rhubarb.

Chætocnema apricaria, Suffr. Jamaica, Porto Rico. Sweet potato, tomato.
,, *confinis*, Lec. (Crotch). Virginia, U.S.A. Maize.
,, *pulicaria*, Melsh. Virginia, U.S.A. Maize.
,, *denticulata*, Ill. Virginia, U.S.A. Maize.
,, *aridula*, Gyll. France, Russia. Oats and other grain crops.
,, *amazona*. Barbados. Sweet potato.
,, *basalis*, Baly. India. Rice.
,, *ectypa*, Horn. U.S.A. Sudan grass, desert corn.
,, *tibialis*, Illig. France. Beet.
,, *pusaensis*, Maulik. India. Boring stems of millet (*Panicum miliaceum*).
,, *concinnipennis*, Baly. India. Boring stems of seedling paddy (*Oryza*).
Blepharida rhois, Forst. Virginia, U.S.A. Sumac (*Rhus*).
Podontia quatuordecimpunctata, L. India. *Spondias mangifera* and *Ficus elastica*.
,, *quatuordecimpunctata*, L. Kuala Lumpur, F.M.S. *Spondias dulcis*.
Argopistis oleæ, Bryant. Cape Province, South Africa. Mining in leaves of olive trees.
,, *sexvittatus*, Bryant. Cape Province, South Africa. Mining in leaves of olive trees.
Argopus ahrensi, Germ. Europe. Artichoke.
Cercyonia citri, Bryant. Gold Coast. Young citrus plants.
Zomba gossypii. Bryant. Nyasaland. Cotton.
Psylliodes punctulata, Melsh. U.S.A.; Canada, Vancouver. Hops, clover, tomatoes and other farm crops; also nettles and chickweed.
,, *chrysocephala*, L. Germany, Bessarabia, Sweden, France. Soy bean, rape, cabbage, radish.
,, *attenuata*, Koch. Bohemia, Russia. Hemp, hops.
,, *affinis*, Payk. Europe. Solanaceæ: *Lycium*, *Hyoscyamus*, *Atropa* and various species of *Solanum*.
,, *napi*, F. Russia. Peas, vetches and Cruciferæ generally.
,, *picina*, Marsh. Kiev, Russia. Cereals, barley.

In arranging the genera of HALTICINÆ from the countries under review no attempt has been made to follow a phylogenetic order, because the data at present available are not sufficient for the discovery of the true inter-relationships of the genera. The latter have been arranged in such a way that the collector in India can identify his catch with the least possible difficulty.

Key to the primary Sections.

Antennæ nine-segmented .... Section I, p. 114.
Antennæ ten-segmented .... Section II, p. 124.
Antennæ eleven-segmented .... Section III, p. 130.

SECTION I Antennæ nine-segmented).

This section contains only one genus.

Genus NONARTHRA, *Baly*.

Nonarthra, Baly, Journ. of Entomology, i, 1862, p. 455.
Enneamera, Harold, Col. Heft. xiii, 1875, p. 185.

GENOTYPE, *Nonarthra variabilis*, Baly (Northern India); by Baly's own designation.

Body rounded-ovate, sometimes more elongate, narrowing behind. *Head* broad but narrower than the width of the prothorax, exserted. Antennæ nine-segmented, situated nearer to the eyes than to each other; first segment long, second about half the length of the first and shorter than the third; from the fourth

Fig. 40.—*Nonarthra variabilis*, Baly; hind tibia and tarsus.

onwards all the segments except the last are dilated, sometimes compressed, and triangularly produced on the inner side, this character being more accentuated in some species than in others. Interocular and interantennal spaces smooth and more or less flat, the latter sometimes with a longitudinal median impression, either side of which is slightly elevated. Eyes strongly convex. *Prothorax* broader than long, narrowed in front, longer in the median longitudinal line than at the sides; front margin almost straight, hind margin forming an uniform arch the ends of which are directed forwards; sides almost straight and oblique, narrowly

margined; anterior and posterior angles more or less right angles, rounded, and often bearing a fine seta; upper surface convex, smooth, almost impunctate or very minutely and sparsely punctate, as can be seen under a high power in a suitable light. *Scutellum* triangular. *Elytra* slightly broader at the base than the prothorax; surface smooth, very minutely punctate, and sometimes more closely so than the surface of the pronotum; the punctuation is generally of a mixed character, extremely fine and comparatively stronger punctures of varying degrees of closeness being observable; in some cases the background of extremely fine punctures is conspicuous; lateral margins sometimes slightly explanate before the middle. *Underside*: the hind femora have a deep channel for the reception of the tibiæ on their lower surface; posterior tibiæ somewhat broader towards the apex, with dorsal surface flattened and furnished on the outer side to a certain distance from the apex with a series of minute spinules, generally of a darker colour, while on the inner side there are only fine hairs; the point of insertion of the tarsus is not at the apex of the tibia, but a little distance before the apex, which is rounded and also set with minute spinules; first segment of the tarsus about as long as, or somewhat longer than, the remaining segments, the claw-segment being fairly long; claws appendiculate.

In some species the coloration varies considerably; this is especially the case in those that have transverse coloured bands across the elytra, while in species originally unicolorous such variation is not noticeable.

Range. India, Ceylon, Borneo, Sumatra, Philippine Is., Celebes, Japan, Australia.

Baly first introduced the name *Nonarthra* in 1862. Harold in 1875 changed it to *Enneamera*, on the ground that Baly's name was inadmissible because etymologically it is a hybrid. According to the rules Harold had no right to change the original name except for reasons falling under the law of priority, however incorrect or unfortunate the name may otherwise be. I therefore adhere to the original name *Nonarthra*.

Key to the Species.

1. Body blue or violet-blue above and black or piceous on the underside .	2.
Body not so coloured	4.
2. Body longer, 4–5 mm. long	3.
Body shorter, $3\frac{1}{2}$ mm. long	*N. dhumala*, sp. n., p. 121.
3. Elytra more strongly punctate	*N. birmanica*, Jac., p. 122.
Elytra faintly and finely punctate	*N. dakshina*, sp. n., p. 121.
4. Surface of elytra very minutely and closely punctate (these minute punctures more accentuated in some species than in others), and with larger, coarser punctures; length $5\frac{1}{4}$ mm. ..	*N. patkaia*, sp. n., p. 119.

Body smaller and without distinct elytral punctuation of the type described .... 5.

5. Pronotum impunctate .... 6.

Pronotum distinctly punctate .... 7.

6. Head with a black spot above the eyes; elytra with a basal black band, considerably widening at the suture (see fuller colour diagnosis) .... *N. apicalis*, Jac., p. 123.

Head with a black spot on the vertex; elytra with the whole of the basal area occupied by a large, triangular, reddish patch, and each elytron with a post-median, reddish-piceous, transverse band .... *N. ceylonensis*, Jac., p. 123.

7. Fourth to eighth antennal segments broadly flattened or transverse; head entirely black; elytra piceous with lateral and apical margins broadly fulvous; length 5 mm. .... *N. limbatipennis*, Jac., [p. 122.

Fourth to eighth antennal segments thickened, but the flattening is not accentuated; coloration very variable. *N. variabilis*, Baly, p. 116.

64. Nonarthra variabilis, *Baly*.

Nonarthra variabilis, Baly, Journ. of Ent. i, 1862, p. 456; id., Cist. Ent. ii, 1878, p. 376; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 423.

Enneamera scutellata, Jacoby, Mém. Soc. Ent. Belg. vii, 1900, p. 126.

Nonarthra albofasciata, Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 424.

This species is extremely variable in coloration, but fairly constant in structural characters. The ground-colour is pale yellow or yellow-brown, and the variation consists in the extent to which black is distributed over the various parts of the body. The head may be completely or partly black; when it is yellow-brown there are usually two round black spots on the vertex. The four basal segments of the antennæ are usually yellow-brown and never wholly black, sometimes the upper surface only is black; the five apical segments are usually dark and never entirely brown, only the black colour varies in intensity. The prothorax may be light yellow, red-brown, or black; in the latter case sometimes the edges are faintly yellow. The scutellum is generally black, sometimes red-brown or lighter. The elytra may be entirely yellow, red-brown, or black; otherwise they have two black transverse bands alternating with yellow ones; the length of these bands varies considerably, and the basal black band very often does not reach the side margins of the elytra; sometimes three shades of colour, viz. pale yellow, black, and red-brown, are at once present on the elytra; the basal black band is in some examples prolonged triangularly along the suture to meet the

median band; in several specimens there is only a round sutural patch in the apical area and the edges of the elytra at the apex, and for a short distance forwards along the sides, are stained black. In some examples the elytra are almost entirely black, but exhibit obscure, dark red, transverse bands; this condition is probably transitional between the banded and the unicolorous black phases. The legs, except the apices of the femora, are frequently yellow-brown, while the rest of the under surface is black; sometimes the legs are entirely black; in many cases the hind tibiæ are smoky, but the teeth on their outer edge are always darker. Any combination of the black markings described above is possible. The size of the insects also varies to some extent. Since in some individuals the scutellum is black, while

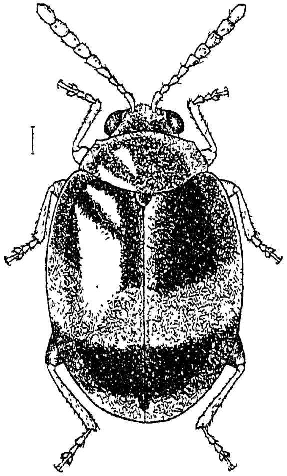

Fig. 41.—*Nonarthra variabilis*, Baly.

the rest of the upper surface is entirely red-brown, Jacoby called this form a new species (*Enneamera scutellata*), but I consider it a variety of *N. variabilis*, though perhaps a more definite and stable variety than some of the others which occur. In proposing the species *albofasciata*, Duvivier writes that this form looks slightly more elongate and larger and that he considers it to be a distinct species, but he ends his short description by expressing the doubt that the insect may after all be only a variety of *N. variabilis*. Duvivier also attempted to classify the varieties but I think that, while it is possible to catalogue all the different combinations of yellow and black markings found in this insect, no useful purpose is served by doing so. In making the above remarks I have before me about 120 examples, which show the high degree of variability of this species.

Duvivier doubtfully identified an example from Kurseong, taken by P. Braet, as *Nonarthra nigriceps*, Weise, a Chinese species, but in my opinion the Kurseong specimen may well belong to one of

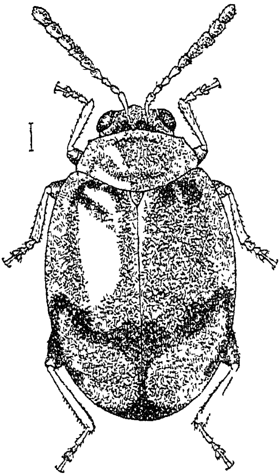

Fig. 42.—*Nonarthra variabilis*, Baly.

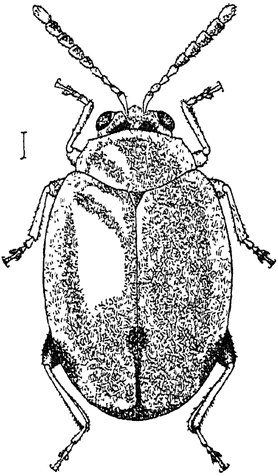

Fig. 43.—*Nonarthra variabilis*, Baly.

the varieties of the present species. Moreover, the latter may range beyond the limits of India, and the Chinese species may possibly be identical with *N. variabilis*.

The structural characters are as stated in the generic description. The thickness of the five apical segments of the antennæ may vary to a certain extent, the compression and consequent inner expansion being more pronounced in some examples than in others. The pronotal and elytral punctures are more visible in some specimens than in others, and sometimes this is due to the fact that the punctures on the lighter portions of the surface have dark centres; the punctures, though fine, are always visible under a high power, when the insect is held at a suitable angle.

Length, 3–4½ mm.

UNITED PROVINCES: Ranikhet, vi–viii. 1916; West Almora: Kumaon, Sunderdhunga Valley, 8000–12,000 ft., Naini Tal, ix. 1917, Dudhatoli, 6000–10,000 ft., S. Garhwal, 6500 ft., Haldwani, Khaula, 4500 ft., (collected from all these localities by *H. G. Champion*); Almora District, Chaubattia, 6000–7000 ft., 1920 (*S. R. Archer*). SIKKIM: Kalimpong, Darjeeling, 4500 ft., 24. iv–10. v. 1915 (*F. H. Gravely*, Indian Museum); Darjeeling, 6000 ft., 2. x. 1908, by sweeping grass and low herbage (*Brunetti*, Indian Museum); Gopaldhara, 3400–4700 ft., 3. x. 1914 (*H. Stevens*); Rungbong Valley, vi. 1912 (*W. K. Webb*); Kurseong, etc., many specimens in the collection of the late Mons. J. Achard. SIMLA HILLS: Theog, 8000 ft., 13. v. 1909 (*Annandale*, Indian Museum). ASSAM: Shillong (*F. W. Champion*).

Types of *variabilis*, Baly, and of *scutellata*, Jacoby, in the British Museum. There are examples of *albofasciata*, Duviv., in the Brussels Museum.

65. **Nonarthra patkaia**, sp. nov.

Body broad and large. Colour yellow-brown; the four apical segments of the antennæ, the head and the apex of the femora of the hind legs, with the teeth on the edge of the hind tibiæ, black; the fourth segment of the antennæ fuscous; palpi and mandibles dark brown.

Head broad, interocular space slightly depressed in the middle and very finely punctate, interantennal space wide and similarly finely punctate. Labrum and mouth-parts with long bristly hairs. Antennæ short, hardly reaching the base of the pronotum, the three basal segments yellow, with fine hairs; first segment long and club-shaped, almost as long as third, second shorter; fourth to eighth flattened and triangularly produced on the inner side, the fourth smaller than the fifth, which is again smaller than the sixth, the latter and the following two almost equal to each other; ninth smaller, flattened but not triangularly produced inwardly. *Prothorax* formed as stated under the description of the genus, the base being slightly sinuate at each side, and the posterior angles more rounded than the anterior: its dorsal surface transversely convex and, seen under a high power, extremely minutely and finely punctate. *Scutellum* sharply triangular and impunctate. *Elytra* almost as broad at the base as the prothorax; their whole

surface is entirely covered with two kinds of punctures, (i) a background of minute and shallow pits, very closely and uniformly distributed, and (ii) the ordinary punctures, which are more or less close together, each one having a dark centre. *Underside* with

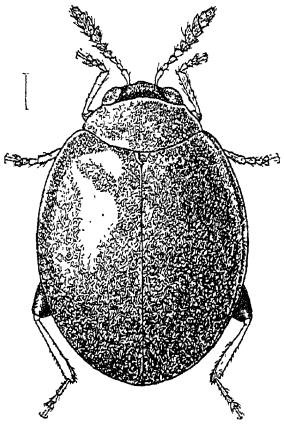

Fig. 44. –*Nonarthra patkaia*, Maulik.

Fig. 45.—*Nonarthra patakia*, Maulik.
Antenna, showing the angular expansions on the inner side of segments 4 to 8.

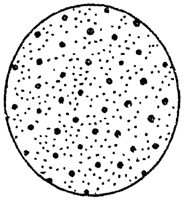

Fig. 46.—*Nonarthra patkaia*, Maulik; optical section of surface of elytra, to show the two kinds of elytral punctures.

fine light brown hairs more or less closely distributed. Other structures as stated under the generic description, the hind femora being very strongly dilated.

Length, $5\frac{1}{4}$ mm.; *breadth*, $3\frac{1}{2}$ mm.

ASSAM: Patkai Mts. (*Doherty*).

Type in the British Museum. Described from two examples.

66. **Nonarthra dhumala** *, sp. nov.

Body oblong. Colour above blue-black, underside black, the three basal segments of the antennæ pitch-brown.

Head with vertex smooth and impunctate, interocular and interantennal spaces without any depression at all. The antennæ pass a little distance beyond the base of the pronotum; the three basal segments are as usual, the next five segments flattened and expanded on the inner side, the ninth flattened but rounded. *Prothorax* as is normal in the genus; upper surface smooth and with fine punctures, which can be seen only under a high power and in a suitable light. *Scutellum* of the form usual in the genus. *Elytra* as broad at the base as the base of the prothorax; their surface is completely covered with coarser and finer punctures, the middle in some examples being rough, and the distribution of the punctuation varying to a certain extent. *Underside* covered with fine hairs in the normal manner.

Length, $3\frac{1}{2}$ mm.

TENASSERIM: Tavoy (*Doherty*). ANDAMAN ISLANDS (*Captain Wimberley*). NILGIRI HILLS (*H. L. Andrewes*).

Type in the British Museum. Described from eight examples.

67. **Nonarthra dakshina** †, sp. nov.

Body elongate-oblong. Colour of upper side blue tinged with purple, the three basal segments of the antennæ pitch-brown, the remaining antennal segments and the whole of the underside of the body black.

Head: vertex somewhat convex, the rest of its surface as in *N. patkaia*. Antennæ comparatively longer than in *N. birmanica*, passing to a certain extent beyond the base of the pronotum: the three basal segments rounded in section, the first being long and club-shaped; fourth to eighth flattened, successively increasing in size, not so much produced inwardly as in *N. patkaia*; last segment flattened, but not produced inwardly at all. *Prothorax* shaped as described under the genus, the punctuation of its upper surface almost invisible unless seen in a suitable light. *Scutellum* sharply triangular, with the surface impunctate. *Elytra* almost as broad at the base as the prothorax; lateral margins somewhat explanate; surface confusedly punctate with punctures of two sizes, some much finer and others larger, but the punctuation is sparser and less strong than in *N. birmanica*. *Underside* closely covered with hair.

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* Sanskrit, "smoky" or "purple."

† Sanskrit, "South."

Length, 4½ mm.

South India: Mahé, Malabar coast. Travancore (*G. S. Imray*).

Type in the British Museum. Described from three examples.

68. **Nonarthra birmanica**, *Jacoby*.

Enneamera birmanica, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 935.

Colour above violaceous-blue; antennæ black with the three basal segments obscure piceous; labrum, underside and legs, black.

Head impunctate; antennæ very short, the fourth and the following segments broadly dilated and depressed. *Prothorax* twice as broad as long, the sides perfectly straight, strongly narrowed in front, the surface not visibly punctate. *Elytra* widened towards the middle, very closely and finely punctate, but more strongly so than in *N. dakshina*. Closely allied to *N. sumatrensis*, Har., *N. cyanea* *, Baly and *N. nigriceps*, Weise, but probably distinct from any of these; it differs from *N. sumatrensis* in the almost entirely black antennæ, the violaceous-blue colour of the upper side and the very close punctuation of the elytra, while from the other species it is distinguished by the colour of the legs and underside.

Length, 5 mm.

Burma: Palon, September (*L. Fea*).

Type in the Genoa Museum. I have not seen the type of this species.

69. **Nonarthra limbatipennis**, *Jacoby*.

Enneamera limbatipennis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 935.

Body broadly rounded. Colour testaceous; head, antennæ (except the three basal segments and part of the fourth segment, which are fulvous) and apex of posterior femora, black; elytra piceous, with lateral and apical margins broadly fulvous.

Head very minutely punctate, depressed between the eyes; antennæ very short, with the apical six segments broadly flattened and dilated. *Prothorax* transverse, widened at the middle †; its sides straight, strongly narrowed in front; surface impressed with very minute punctures. *Elytra* with punctuation like that of the prothorax.

Length, 5 mm.

Burma: Palon, September (*L. Fea*).

Type in the Genoa Museum. I have not seen this species.

* Jacoby wrote "*cærulea*, Baly," but probably intended to write "*cyanea*," since Baly does not appear ever to have published any species of this genus under the name *cærulea*.

† Evidently Jacoby means that the pronotum is longest along the middle longitudinal line.

70. **Nonarthra apicalis,** *Jacoby.*

Enneamera apicalis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 200.

Colour pale testaceous; head fulvous, with a black triangular spot above the eyes; antennæ dark fulvous, with the three basal segments somewhat lighter and shining; scutellum obscure fulvous; elytra testaceous, with a transverse basal black band, which is considerably widened at the suture and connected with a small black streak placed on the shoulder; also with a narrow transverse band near the apex, bounding the apical rufous area in front; while two black spots, almost joined together, are situated across the middle of the elytra; underside and legs fulvous, with the sides of the breast and bases of the femora black. In one varietal form the elytra are entirely testaceous without spots.

Head impunctate; antennæ with the three basal segments shining, the rest transverse and pubescent. *Prothorax* transverse, widened at the middle *, the sides nearly straight, the anterior margin slightly, and the posterior strongly, produced in the middle, the surface impunctate. *Elytra* convex, rounded, very finely and minutely punctate.

Length, $3\frac{3}{4}$ mm.

BURMA: Schwegoo, x. 1885 (*L. Fea*).

Type in the Genoa Museum. I have not seen this species.

71. **Nonarthra ceylonensis,** *Jacoby.*

Enneamera ceylonensis, Jac., Proc. Zool. Soc. Lond. 1887, p. 84.

Colour testaceous; a spot or patch on the vertex of the head, and the scutellum, black; labrum piceous; antennæ entirely brownish, though the three or four basal segments are distinctly much lighter than the rest; a large triangular patch on the basal area of the elytra, and a post-median transverse narrow band on each elytron, reddish, the band being more piceous than reddish; this reddish colour sometimes spreads over the whole elytral surface, while in one specimen the post-median band on each elytron is divided into two small spots.

Head broader than long, impunctate. Antennæ with the first segment comparatively long, the second shorter than either the first or the third; from the fourth to the eighth the segments are distinctly triangularly dilated; the ninth is flattened as usual, but not dilated like the preceding segments. *Prothorax* broader than long, basal margin widely arched, sides straight, anterior and posterior angles almost right angles, and rounded; upper surface uniformly convex from side to side and impunctate. *Scutellum* triangular, with the surface impunctate. *Elytra* hardly broader at the base than the prothorax, the surface very convex, entirely

* See footnote on p. 122.

smooth and sparsely and extremely minutely punctate, the punctures being scarcely visible under a low power. Structures of the *underside* as stated under the description of the genus.

Length, 4 mm.

CEYLON.

Type in the British Museum.

SECTION II (Antennæ ten-segmented).

This section contains only one genus.

Genus **PSYLLIODES**, *Latreille.*

Psylliodes, Latr., Cuvier's Règne Anim., 2 ed., v, 1829, p. 154; Chap., Gen. Col., xi, 1875, p. 140.

GENOTYPE. I select *Chrysomela chrysocephala*, L. (Europe), the first of the five species mentioned by Latreille when erecting the genus.

Small insects, with body oblong-ovate, narrowed behind and in front. *Head* rounded, inclined forward; interocular and interantennal spaces generally smooth, but sometimes with a carina;

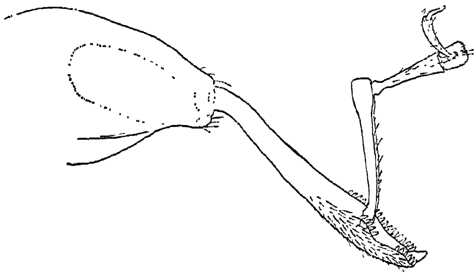

Fig. 47.—*Psylliodes tenebrosus*, Jac. Lateral view of part of hind femur, tibia and tarsus, showing the point of insertion of the tarsus in the tibia.

surface generally punctate. Eyes large, convex, more or less oval. Antennæ composed of ten segments, generally thin, moderately long, extending to the middle of the elytra; their roots are nearer to the eyes than to each other; basal segments elongate, slender, their relative lengths varying; apical segments slightly thickened, the last segment pointed. *Prothorax* broader than long, usually somewhat narrowed in front, anterior margin straight, lateral margins feebly rounded, sides declivous, surface convex and generally punctate. *Scutellum* small, almost an equilateral triangle. *Elytra* oblong-ovate, narrowed behind, somewhat broader at the base than the prothorax, very regularly punctate-striate;

the scutellar row of punctures generally long, the interstices sometimes raised, usually flat, and bearing very fine and feebly impressed punctures, which are often irregularly arranged in longitudinal rows. *Underside*: anterior coxal cavities open behind; front and middle legs comparatively thin; hind femora considerably thickened, channelled on the underside for the reception of the tibiæ, the latter broadened towards the apex and channelled above, the sides of the channel being set with sharp spinules and somewhat sinuate, and generally ending in two sharp teeth; the hind tarsus is inserted at a point considerably before the apex of the tibia, its first segment is very elongate and slender, the second similar but somewhat shorter, the third bilobed, the fourth ending in simple claws.

This is a homogeneous genus, easily recognised by the ten-segmented antennæ and the characteristic structure of the hind tibiæ and tarsi.

Range. World-wide.

Key to the Species.

1. Colour pale testaceous, with the upper side subæneous; margins of elytra slightly fuscous	*Ps. palleola*, Motsch., [p. 125.
No such combination of colours; margins of elytra not fuscous	2.
2. Frontal carina in the interantennal space sharp	*Ps. viridana*, Motsch., [p. 126.
Frontal carina absent	3.
3. Interstices between the rows of punctures on the elytra not costate at all........	4.
Interstices costate, at least towards the apex	*Ps. brettinghami*, Baly, [p. 126.
Interstices costate throughout	*Ps. shira*, sp. n., p. 128.
4. Body blue, without brassy tinge, broader at the middle; the feeble interstitial punctures less numerous	*Ps. plana*, sp. n., p. 128.
Body black, with brassy sheen, narrower; the feeble interstitial punctures more numerous........................	*Ps. tenebrosus*, Jac., [p. 129.

72. **Psylliodes palleola**, *Motschulsky*.

Psylliodes palleola, Motsch., Bull. Soc. Nat. Moscou, xxxix, 1866, part 1, no. ii, p. 418.

In form resembling [the European] *Ps. luteola*, Müller, but a little smaller. Oblong, subconvex, shining, punctate; colour pale testaceous, upper side shining subæneous, eyes black; pronotum punctate; elytra deeply punctate-striate, margins slightly fuscous.

Length, $1\frac{7}{8}$ mm.; *breadth*, $1\frac{1}{4}$ mm.

CEYLON: mountains of Nuwara Eliya.

I have not seen the type. The above description is a translation from the original Latin.

73. Psylliodes viridana, *Motschulsky.*

Psylliodes viridana, Motsch., Etud. Ent. vii, 1858, p. 108.

Elongate-ovate, convex, shining, punctate; upper side more or less blackish-green; underside and the seven apical segments of the antennæ, black; their base, the front and middle legs and the hind tarsi, testaceous; hind femora and hind tibiæ more or less piceous.

Head oblong, with front punctate, interantennal space carinate; eyes large but scarcely prominent. *Prothorax* transverse, subconical, very much punctate, with base margined, subimpressed on each side, somewhat arched in the middle; sides almost straight, anterior angles somewhat produced, dentiform, posterior angles acuminate. *Scutellum* triangular. *Elytra* scarcely broader at the base than the prothorax, elongate-ovate, punctate-striate, the striæ being arranged somewhat obliquely, each interstice with finer punctures which are arranged in a row. Body punctate beneath, deeply and arcuately strigose under the femora.

Length, a little more than $2\frac{1}{2}$ mm.; *breadth*, $1\frac{1}{4}$ mm.

Very near to our [European] *Ps. attenuata*, Ill., which it resembles in size, form and colour, but it has the antennæ thicker and the segments very black towards the extremity, the frontal carina sharper and strigosities in the form of a rasp on each side of the mesothorax, under the posterior femora. This part is simply punctate in our European species; does the special sculpturation in *Ps. viridana* constitute a sound-producing apparatus?

Ceylon: mountains of Nuwara Eliya (*Nietner*).

Location of *type* unknown to me. The above is translated from Motschulsky's Latin diagnosis and remarks in French.

74. Psylliodes brettinghami, *Baly.*

Psylliodes brettinghami, Baly, Journ. of Ent. i, 1862, p. 457.

Body broader, ovate. Colour above shining blue, very often with a mixture of brown, underside obscure rufo-piceous with a purple reflection, legs pale piceous, the apex of the four anterior tibiæ, together with the tarsi of the same legs, blackish-fuscous; antennæ black with the three basal segments pale fulvous.

Head broader at base and narrowed in front, vertex almost impunctate or very minutely and sparsely punctate when seen under a high power, the lower portion of the face rufo-piceous, sparingly clothed with pale fulvous hairs; frontal tubercles and median carina absent. Antennæ with first segment long, club-shaped, second slender, slightly shorter, third shorter than second, from the fourth to the tenth the segments are stouter and almost equal to each other, the last being pointed. *Prothorax* nearly a third broader at the base than long, narrowed from base to front;

sides straight, obliquely truncate at their front end; upper surface smooth, convex from side to side, deeply but not very closely punctate. *Scutellum* small, triangular, shining piceous. *Elytra* broader than prothorax, but less so at the base, ovate, narrowed from a short distance behind the shoulders to the apex. Each elytron is impressed with eleven regular rows of punctures, including a long scutellar and an extreme marginal row; striæ on the outer half of the surface (and all towards the apex) indistinctly

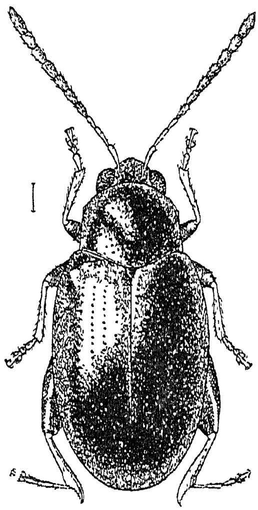

Fig. 48.—*Psylliodes brettinghami*, Baly.

sulcate, their interstices obsoletely convex, those on the inner part of the disc in front flat, and all of them finely and remotely punctate.

Length, 3½ mm.

The type-locality is simply "INDIA." BENGAL: Pusa, viii, 1912 and 1915, on Brinjal seedlings and leaves (*C. C. Ghosh*, Pusa Coll.). BURMA: Ruby Mines (*Doherty*); Tavoy, Tenasserim (*Doherty*).

Type in the British Museum.

In the six specimens in the British Museum from Baly's collection the legs are more brownish than piceous; but in two examples from Tavoy and in the three from Ruby Mines the underside and legs are more pitchy than either brownish or reddish; the examples from Ruby Mines are also darker blue above.

75. Psylliodes shira *, sp. nov.

Body elongate-ovate. Colour blue above; the legs (except the posterior femora), the three basal segments of the antennæ, and the mouth-parts, yellow or yellow-brown; the six or seven apical segments of the antennæ, and the underside, piceous.

Head: interocular space with a few punctures, the interantennal space without any sharp carina. Antennæ extending to the middle of the elytra; first segment long, club-shaped, second slightly longer than third, fourth also longer than third, fifth shorter than fourth; from the fifth to the end the segments are somewhat thicker and almost equal to each other. *Prothorax* quadrate, its sides slightly oblique, more or less straight, anterior angles obliquely cut away, each bearing a fine seta, posterior angles obtuse, each of them also bearing a fine seta, basal margin slightly sinuate; the upper surface uniformly convex from side to side and more or less closely punctate with deep punctures. *Scutellum* small, insignificant, triangular. *Elytra* broader at the base than the prothorax, almost parallel-sided, somewhat narrowed behind; each with eleven regular rows of punctures, including a scutellar and an extreme marginal row; all the interstices are raised throughout and contain the usual faint and fine punctures. *Underside* covered with fine hairs.

Length, 3 mm.

ASSAM: Manipur (*Doherty*).

Type in the British Museum. Described from four examples.

76. Psylliodes plana, sp. nov.

Body ovate, narrowed in front as well as behind. Colour above pure blue without any brassy or bronzy tint; the first two or three segments of the antennæ yellow-brown, the rest piceous; the legs dark pitch-brown, the colour being somewhat lighter at the points of articulation.

Head with vertex convex, rounded and closely punctate, interocular and interantennal spaces even. Antennæ extending a little distance beyond the middle of the elytra; first segment elongate, slender, club-shaped, second and third equal, fourth slightly longer than either third or fifth; from the sixth the segments are somewhat thicker and more or less nearly equal, and the tenth is pointed. *Prothorax* very slightly broader than long, narrowed in front, the hind margin widely sinuate, anterior margin truncate; each of the anterior and posterior lateral angles bears a fine seta; the upper surface is convex with the sides sloping down, and confusedly and strongly punctate. *Scutellum* small, triangular, with the apex broadly rounded and the surface impunctate. *Elytra* broader at the base than the prothorax, broadest at the base and narrowing towards the apex; their

* Sanskrit, "rib" (in allusion to the elytral costæ).

surface smooth, punctate-striate, each elytron having eleven rows of punctures, including a long scutellar and an extreme marginal row; the punctures in the rows are feebly impressed, the interstitial punctures being still feebler, and the interstices perfectly even throughout. *Underside* as under the description of the genus.

Length, 3 mm.

UNITED PROVINCES: Kumaon; Sukhatal, 8000 feet, v. 1920, and Ranikhet (*H. G. Champion*).

Type in the British Museum. Described from two examples.

77. Psylliodes tenebrosus, *Jacoby*.

Psylliodes tenebrosus, Jac., Ann. Soc. Ent. Belgique, xl, 1896, p. 269.

Body narrowly elongate, parallel-sided, narrowed behind. Colour above black with brassy sheen, underside black; the three basal segments of the antennæ yellowish, the rest black; the points of articulation of the femora and tibiæ, the apex of the front and middle tibiæ, and the entire hind tibiæ and hind tarsi, yellow or brownish-yellow, while the remainder of the legs is piceous.

Head distinctly and rather closely punctate, frontal tubercles absent, clypeus impunctate. Antennæ extending to the middle of the elytra; first segment elongate, club-shaped, second, third and fourth elongate, almost equal to each other in length; from the fifth to the ninth the segments are somewhat thicker and become successively shorter, and the tenth is pointed. *Prothorax* broader than long, narrowed in front; sides straight, anterior angles obliquely cut away and bearing a fine seta, posterior angles a little more than right angles, each bearing a fine seta; upper surface convex and uniformly confusedly punctate, with strong punctures. *Scutellum* small, triangular, with the surface impunctate. *Elytra*: each with eleven longitudinal, regular rows of punctures, including a long scutellar and an extreme marginal row; the rows converge towards the apex, where they meet in pairs and the punctures become somewhat feebler: the interstices contain irregularly arranged longitudinal rows of very feebly impressed minute punctures, and generally there are two or three such rows in each interstice. *Underside* shining.

Length, 2¾ mm.

PUNJAB: Chamba (type-locality). UNITED PROVINCES: Chaubattia, Almora District, 6000–7000 ft. (*S. R. Archer*); South Gahrwal, 6500 ft., Sukhatal, 8000 ft., Dudhatoli, 8000–10,000 ft., all in Kumaon (*H. G. Champion*); Naini Tal, 7000–8500 ft., vii. 1923 (*H. G. Champion*); Naini Tal, Jolikoti, 10. xi. 1909, on Cruciferous plants (Pusa Coll.); Bhim Tal, 6. iii. 1912 (Pusa Coll.).

Type in the British Museum.

There are examples in the Indian Museum collection from the Palni Hills (Kodaikanal, 6900–7200 ft., ix. 1922, *S. Kemp*), and two examples in the late Mons. J. Achard's collection from Shembaganur, which strongly resemble this species but seem slightly more narrowed behind.

SECTION III (Antennæ eleven-segmented).

1. Pronotum and elytra, or at least the elytra, pubescent; insect always considerably less than 7 mm. long *	Subsection I, p. 130.
Pronotum and elytra not pubescent (except in *Ophrida hirsuta*; see footnote below) ..	2.
2. Claw-segment of posterior tarsi greatly dilated	Subsection II, p. 145.
Claw-segment of posterior tarsi not greatly dilated	3.
3. Anterior coxal cavities closed or almost closed behind	Subsection III, p. 174.
Anterior coxal cavities open behind	Subsection IV, p. 283.

SUBSECTION I.

Pronotum and elytra, or at least the elytra, pubescent; body always considerably less than 7 mm. long.

1. Punctures on elytra arranged in rows; the hairs are semi-erect, directed backwards, and arranged in series along the intervals	2.
Punctures on elytra confused; the hairs are adpressed to the body	3.
2. Prothorax very strongly constricted behind..........................	LIPRUS, Motsch., p. 130.
Prothorax not constricted behind	EPITRIX, Foudras, p. 133.
3. Pronotum shining, without hairs	DEMARCHUS, Jacoby, p. 135.
Pronotum hairy	HESPERA, Weise, p. 137.

Genus **LIPRUS**, *Motschulsky*.

Liprus, Motsch., Etud. Ent. ix, 1860, p. 26.

GENOTYPE, *Liprus punctato-striatus*, Motsch. (Japan); the species for which Motschulsky erected the genus.

Body oblong, very small ($2\frac{3}{4}$–3 mm. long.). *Head* as broad as prothorax, eyes strongly convex, frontal tubercles well developed; antennæ very long, sometimes as long as the body, with the segments elongate and somewhat thickened towards the apex. *Prothorax* longer than broad, much narrower than the base of the elytra and strongly constricted behind. *Elytra* seriately punctate;

* *Ophrida hirsuta*, Stebbing (p. 230), is pubescent on the upper side, but it is a large insect and can be easily distinguished from the species in Subsection I.

the humerus is strongly raised, and between it and the suture the surface is so markedly convex that the part immediately behind appears strongly depressed. The intervals between the rows of large punctures bear series of short, semi-erect, silvery hairs. *Underside*: anterior coxal cavities closed behind; prosternum very narrow, almost concealed between the strongly rounded coxæ; mesosternum elongate and more or less broad; first abdominal sternite very long; hind femora more strongly incrassate than the others; all the tibiæ cylindrical and without spurs or spinules at the apex; claw-segment of the tarsi thickened and not projecting so much beyond the bilobed segment as in some genera; claws small, appendiculate.

Range. Japan, Java, Sumatra, Borneo, Andaman Islands, Burma, Assam.

Key to the Species.

Colour deep chestnut-brown .... *L. assamensis*, sp. n., p. 131.
Colour of prothorax and legs golden-brown, that of elytra black with bluish tint .... *L. fulvoniger*, sp. n., p. 132.

78. **Liprus assamensis**, sp. nov.

Body shining. Colour deep chestnut-brown; third, fourth and fifth segments of the antennæ lighter brown.

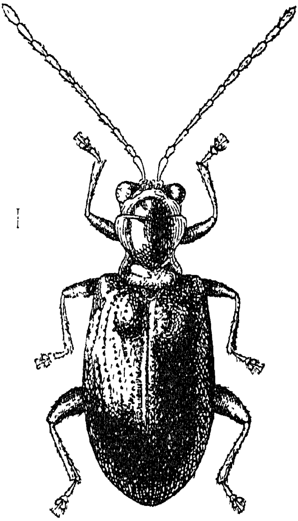

Fig. 49.—*Liprus assamensis*, Maulik.

Head broad and large, vertex convex, impunctate, with a few scattered silvery hairs; interocular space on a more elevated plane

than the vertex; eyes strongly convex; interantennal space very narrow with a deep median impression between two ridges. Antennæ slender, a little shorter than the body, and very sparsely covered with fine hairs, especially towards the apex; first segment long and club-shaped, second shorter and thicker than third, the latter and the following two more or less nearly equal, the sixth very slightly stouter and shorter than the preceding; from the seventh to the end all are nearly equal. *Prothorax* longer than broad, cylindrical, its sides not margined; the deep constriction in front of the base divides the prothorax into two distinct portions, the anterior of which is broadened and rounded in front and has its surface smooth and impunctate, while the posterior portion is smaller, its surface being narrow; the pronotum has a few scattered hairs. *Scutellum* comparatively large, triangular, with apex rounded and surface smooth and impunctate. *Elytra* much broader at the base than the prothorax; the humerus is strongly raised, and below it is a sharp longitudinal ridge which vanishes towards the apex; this ridge divides the surface into two planes, one horizontal and the other vertical. The arrangement of the rows of punctures on each elytron is as follows: on the horizontal surface, *i. e.* internal to the ridge, there are seven rows of punctures towards the base; behind, the short sutural row anastomoses with the next row, and the sixth row bifurcates, posterior to the humerus, into two rows; about the middle of the length of the elytron eight rows can be counted; on the vertical area, *i. e.* external to the ridge, there are either four or three confused rows, which towards the apex become reduced to three or two, as the case may be; all the rows converge towards the apex. Interstices on the external area somewhat raised. *Underside* smooth, shining, impunctate, sparsely scattered over with fine silvery hairs.

Length, $2\frac{3}{4}$ mm.; *length of antennæ*, 2 mm.

ASSAM: Patkai Mts.; Naga Hills; Assam Valley (all *Doherty*).

Type in the British Museum. Described from eight examples.

There is one example, not in perfect condition, of this genus in the British Museum, collected by G. Rogers from the Andaman Islands. It resembles *L. assamensis* on the whole, but is much lighter in colour and with the elytral punctures larger. Although I do not wish to make a definite statement about the specific relationships of this specimen, at least the fact that the genus *Liprus* occurs in the Andamans is established.

79. **Liprus fulvoniger**, sp. nov.

Prothorax and legs golden-brown; head and antennæ piceous; elytra and underside black with a bluish tint, shining.

Head broad, with vertex convex and impunctate; the median impression between the antennæ is not so pronounced as in *L. assamensis*, nor is the difference of elevation between the vertex and the rest of the surface in front. Antennæ about one-half a millimetre shorter than the body: first segment long and

club-shaped, second shorter and somewhat thicker than third, third, fourth and fifth slender and almost equal, sixth and seventh each slightly shorter than those which precede them and equal to each other, eighth to eleventh very slightly thicker and equal. *Prothorax*: shape and structure as in *L. assamensis*; surface smooth and impunctate. *Scutellum* triangular, impunctate. *Elytra* much broader at the base than the prothorax; humerus prominent, post-humeral longitudinal ridge not so pronounced as in *L. assamensis*; the basal convex area is present, but is also less prominent than in *L. assamensis*. The scheme of punctuation on each elytron is mainly the same as that described in *L. assamensis*: across the base there are seven rows including the sutural and the extreme marginal rows; as in *L. assamensis*, the sutural row anastomoses with the next row; across the middle part eight rows can be counted; all the rows converge, and the punctures become feebler, towards the apex. *Underside* smooth, shining, impunctate, sparsely scattered over with very fine silvery hairs.

Length, 3 mm.; *length of antenna*, $2\frac{1}{2}$ mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum. Described from one example.

Genus EPITRIX, *Foudras*.

Epitrix, Foudras, Hist. Nat. Col. Fr., Altisides, 1860, p. 308; Fowler, Col. Brit. Isl. iv, 1889, p. 384.

GENOTYPE, *Epitrix atropæ*, Foudras (Europe), by present designation. In proposing this genus Foudras mentions three European species, viz. *E. pubescens*, Koch, *E. intermedia*, Foudr. and *E. atropæ*, Foudr.

The insects of this genus can be easily recognised by two characters: (1) a transverse depression just in front of the basal margin of the pronotum, and (2) the rows of semi-erect, backwardly directed hairs along the intervals between the longitudinal series of elytral punctures. These beetles are of small and stout build, the upper surface being roughly punctate. *Head* broad, but narrower than the breadth of the pronotum; eyes convex; antennæ long, somewhat shorter than the body. *Prothorax* broader than long, convex and strongly punctate, furnished with the ante-basal impression mentioned above. *Scutellum* very small, triangular, with apex rounded. *Elytra* seriately punctate, with the punctures very deep, and bearing in the intervals the rows of hairs mentioned above. *Underside* punctate and furnished with hairs. Posterior femora only moderately thickened.

Range. America, Europe, Africa, Madagascar, Ceylon.

This genus is largely South American, but a few representatives of it have been found in Europe, Africa and Madagascar. The insect described below is from Ceylon, and it is probable that the natural range of the genus extends so far, but I cannot be

absolutely sure from the one example before me, since this may have been accidentally imported. From India proper it has not yet been recorded.

80. **Epitrix lomasa** *, nom. nov.

Crepidodera hirtipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 90.

Body oblong-ovate, narrowed at the apex. Colour pitch-black; antennæ and tarsi yellow, the four or five apical segments of the former fuscous.

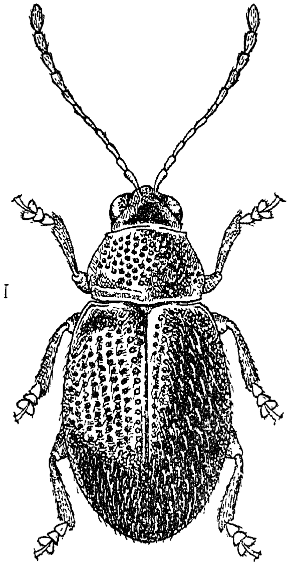

Fig. 50.—*Epitrix lomasa*, Maulik.

Head impunctate, with some long white hairs, each arising from a small puncture; frontal elevations indistinct. Antennæ a little shorter than the body; first and second segments thickened and almost equal, the third and the three following segments equal, slightly shorter than the second but not so stout, the five terminal segments slightly thickened. *Prothorax* somewhat broader than long (not "rather more than twice as broad as long," as Jacoby incorrectly states); sides in front nearly straight and convergent, anterior angles ending in a blunt tooth, posterior almost right angles; disc strongly rugose-punctate, with a deep transverse

* Sanskrit, "hairy."

impression in front of the basal margin, this impression not being terminated on each side by a longitudinal line; there are long hairs along the lateral margins. *Elytra* broader at the base than the pronotum. Each elytron has eleven longitudinal rows of deep punctures, the short scutellar row anastomosing with the first at about the middle of the length of the elytron, in such a way as to render it difficult to say whether the first series should not be considered as arising out of the so-called scutellar row. All the intervals are raised, and that between the two outermost rows is broader. Along all the series except the outer marginal one are long hairs, arising singly, these being longer than those on the underside. The epipleuron of the elytron is indistinctly separated from the upper surface, and it bears a row of punctures along its margin. *Underside* smooth, shining, sparsely covered with longish white hairs; prosternum more or less broad, with a ridge in the middle, on each of which is a longitudinal depression containing a few little pits; anterior coxal cavities closed behind; mesosternum broader than long and rectangular in shape; first abdominal sternite very long. All the femora are equally thickened; tibiæ not channelled; claws appendiculate.

Length, $1\frac{3}{4}$ mm.

CEYLON (*G. Lewis*).

Type in the British Museum.

Jacoby himself was uncertain about the position of this insect, and he placed it tentatively in *Crepidodera*. In referring it with some hesitation to *Epitrix*, I find that the name *hirtipennis* has been used although it has fallen as a synonym; I therefore propose *lomasa* as the specific name.

Genus **DEMARCHUS**, *Jacoby*.

Demarchus, Jac., Proc. Zool. Soc. Lond. 1887, p. 101.

GENOTYPE, *Demarchus pubipennis*, Jac., the only known species.

Body elongate-ovate, pronotum glabrous, elytra pubescent. *Head* broad, eyes strongly convex; antennæ filiform, the third segment more than double the length of the second; palpi robust. *Prothorax* transverse, with an anterior and a posterior transverse depression. *Scutellum* triangular with the apex broadly rounded, convex. *Elytra* with adpressed pubescence, confusedly punctate, finely rugose, their epipleura disappearing behind the middle. *Underside*: anterior coxal cavities open; prosternum scarcely visible; mesosternum narrow and pointed; tibiæ simple, unarmed; first segment of posterior tarsi not longer than the second; claws bifid.

This genus resembles *Sebaethe*, from which the simple tibiæ, transversely impressed thorax and pubescent elytra will at once distinguish it. The posterior femora are moderately but very distinctly incrassate.

Range. Ceylon.

81. **Demarchus pubipennis**, *Jacoby*.

Demarchus pubipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 101.

Colour testaceous; elytra obscure fulvous, with the basal and lateral margins obscurely piceous, the dark colour on the lateral margins in some cases not extending to the apex; labrum piceous. *Head*: vertex depressed, rugose, the frontal tubercles distinct, nearly square and smooth. Antennæ nearly as long as the body; first segment long and club-shaped, second shorter than third; the third and four following segments elongate, nearly equal to each other in length, the four apical segments slightly shorter.

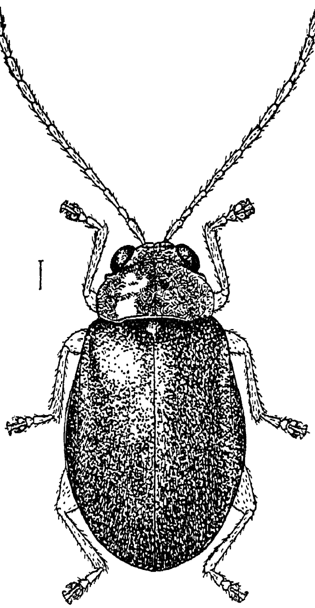

Fig. 51.—*Demarchus pubipennis*, Jac.

Prothorax twice as broad as long, sides rounded at the middle, narrowed near the anterior angles, the latter slightly prominent; posterior angles rounded, front and basal margins almost straight; surface shining, scarcely visibly punctate near the sides, with a short anterior and a posterior transverse depression and a small anterior fovea, as well as an obsolete oblique posterior lateral depression on either side. *Scutellum* triangular with apex rounded, punctate and hairy. *Elytra* broader at the base than the prothorax, closely pubescent, very finely rugose-punctate, each puncture bearing a short silvery adpressed hair. *Underside*

clothed with hairs similar to those on the upper side: other structures as stated under the genus.

Length, 4 mm.

CEYLON: Galle, on coast level, 27. xi–4. xii. 1881 (*G. Lewis*).

Type in British Museum.

Genus **HESPERA**, *Weise.*

Hespera, Weise, Hor. Soc. Ent. Ross. xxiii, 1889, p. 638; Jacoby, Ent. xxiii, 1890, p. 162, pl. i, fig. 11.
Allomorpha, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 934.

GENOTYPE of *Hespera*: *Hespera sericea*, Weise (type in Leningrad; Potanin Coll.).

GENOTYPE of *Allomorpha*: *Allomorpha sericea*, Jac. (type in British Museum).

Body oblong; upper side (including the pronotum) densely covered with pubescence, generally subnitid. *Head* exserted;

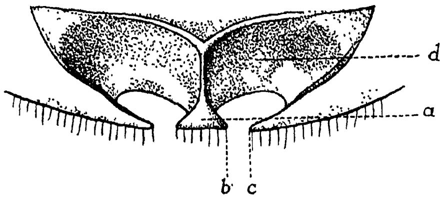

Fig. 52.—*Hespera rufipes*, Maulik. Underside of prothorax: *a*, intercoxal process of prosternum; *b* and *c*, points which almost complete the closure behind of the front coxal cavities, *d*.

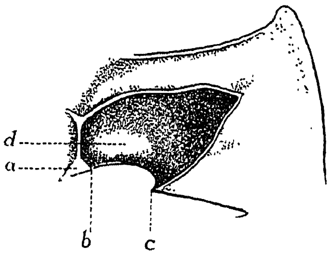

Fig. 53.—*Hespera cyanea*, Maulik. One half of underside of prothorax: *a*, intercoxal process of prosternum; *b* and *c*, the two points which, if produced, would complete the closure of the front coxal cavity, *d*. The specimen was tilted to show the coxal cavity to the best advantage, and hence the hind margin of the intercoxal process appears oblique.

frontal elevations absent; interantennal carina present; eyes strongly convex. Antennæ long, slender, generally extending to two-thirds the length of the body, but in some cases to the end of the body; first segment long and club-shaped, second small, much

shorter than first and a little shorter than third, fourth (in some species at least) slightly longer than third; the following segments more or less nearly equal to each other and always more hairy. *Prothorax* subquadrate, slightly broader than long; each of the anterior and posterior angles bears a fine seta, and the hind angles are widely rounded; front margin more or less straight, the basal margin may be slightly extended; sides straight; surface not very convex and without any basal transverse furrow. *Scutellum* small, triangular. *Elytra* always distinctly broader than prothorax, their sides straight, generally rounded but in some cases rather narrowed at the apex, confusedly punctate; the adpressed pubescence of the surface obscures from view the punctuation; epipleura broader at base, not continued to apex, slanting or vertical. *Underside* thinly pubescent; prosternum very narrow, almost concealed from view by the convexity of the coxæ; front coxal cavities of the closed type, but the closure is not always quite complete; legs slender, posterior femora strongly incrassate, posterior tibiæ longer than either the front or middle pairs and with a small spinule at their apex; posterior tarsi longer than either the front or middle pairs, the first segment being almost as long as the following three together; claws appendiculate.

Range. China, Mongolia, India, Burma, Ceylon. Africa. Some species in this genus have a very wide distribution.

After considerable thought I have decided to sink *Allomorpha*, Jac., as a synonym of *Hespera*, Weise.

Key to the Species.

1.	Upper surface bluish-green; elytral punctures large	*H. cyanea*, sp. n., p. 140.
	Upper surface differently coloured; punctures smaller	2.
2.	Pronotum red-brown, elytra black	*H. rufithorax*, sp. n., [p. 141.
	Body not so coloured	3.
3.	General colour dark brown with golden-brown pubescence	*H. lomasa*, nom. nov., [p. 142.
	Body and its pubescence not so coloured.	4.
4.	Pubescence yellow-brown, rather long; antennæ somewhat stouter	*H. dakshina*, sp. n., p. 145.
	Pubescence silvery-whitish to yellowish-grey; antennæ more slender..........	5.
5.	General colour black, legs reddish-brown.	*H. rufipes*, sp. n., p. 139.
	General colour black, legs also black....	6.
6.	Punctures on the upper surface coarse; antennæ as long as the body..........	*H. krishna*, sp. n., p. 144.
	Punctures finer; antennæ extending to the middle or a little distance beyond the middle of the elytra	7.
7.	Head granulate, not covered with pubescence................................	*H. sericea*, Weise, p. 139.
	Head as punctate as the pronotum and equally covered with pubescence....	*H. nigripes*, sp. n., p. 143.

82. Hespera sericea, *Weise.*

Hespera sericea, Weise, Hor. Soc. Ent. Ross. xxiii, 1889, p. 639; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 426.

Body oblong. Colour deep black; in some specimens the three or four basal segments of the antennæ are blackish mixed with yellow and more shining than the rest; pubescence yellowish-grey.

Head slightly convex with surface finely granulate and also with a few punctures, not covered with pubescence; other characters as described under the genus. Antennæ extending to about the middle of the elytra, the relative lengths of the segments as stated under the genus. *Prothorax*: general shape and proportions as stated in the description of the genus; very slightly narrowed in front; surface granulose-punctate and covered with pubescence. *Scutellum* triangular, small, granulose. *Elytra* granulose-punctate and covered with pubescence like that of the prothorax. *Underside* as described under the genus, more shining than the upper surface.

Length, 3–4 mm.

Darjeeling District: Kurseong (*P. Braet*). Weise first described this species from China when working out Potanin's collection. Jacoby in 1890 identified as this species some examples collected by Mr. A. E. Pratt in July 1888 from Chang Yang, Hupeh Province, Central China. Duvivier in 1892 determined as this species some examples taken at Kurseong by Braet.

Type in the Potanin Collection, Leningrad.

83. Hespera rufipes, sp. nov.

Hespera rufipes, Weise, MS.

Body oblong. Colour greyish-black; the legs and the four basal segments of the antennæ reddish-brown or brownish-yellow; the seven apical segments of the antennæ and the apex of the hind femora blackish.

Head with the vertex more or less flat, and its other parts as described under the genus. Antennæ only half a millimetre shorter than the body; the relative lengths of the segments are as stated under the genus; the second is shorter than the third, which is slightly shorter than the fourth. *Prothorax*: shape, form and other characteristics as stated under the genus; posterior angles widely rounded. *Scutellum* very small and triangular, almost concealed from view by the pubescence. *Elytra* as described under the genus. *Underside* more shining than the upper side, thinly covered with fine hairs. Anterior coxal cavities almost closed behind (see fig. 52, p. 137). Elytral epipleura slanting, broader at the base and vanishing towards the apex, somewhat drawn out vertically at one point.

Length, 3 mm.; *length of antenna*, $2\frac{1}{2}$ mm.

Assam: Khasi Hills (ex Kraatz Collection and Andrewes Collection).

Type in the British Museum.

The above description is taken from specimens from the Kraatz Collection in the British Museum, which bear Weise's labels of identification and which I take to be authentic.

84. Hespera cyanea, sp. nov.

Body oblong. Colour blue-green; antennæ, underside and legs, black.

Head with the vertex more or less coarsely punctate, with a transverse impression above the eyes crossed by a median longitudinal impression; interantennal space with a slight elevation;

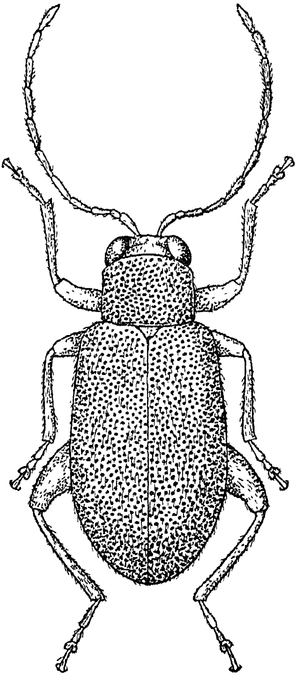

Fig. 54.—*Hespera cyanea*. Maulik.

face sparsely covered with a few scattered hairs. Antennæ slender, extending to a little beyond the middle of the elytra; first segment long and club-shaped, second much smaller than first, third a little longer than second, fourth somewhat longer than third; the following segments nearly equal to each other. *Prothorax* broader than long, anterior and posterior margins nearly straight, sides straight, posterior angles widely rounded, anterior angles almost right angles; surface gently convex from

side to side, coarsely punctate and sparsely covered with fine hairs which are more easily seen at the sides than in the middle. *Scutellum* triangular, purplish, with a few hairs at the base. *Elytra* broader than prothorax, their sides more or less parallel, rounded towards the apex; the surface coarsely and confusedly punctate and sparsely covered with thin hairs, which are more easily visible at the sides than in the middle. *Underside* shining, impunctate, thinly covered with fine hairs; legs slender, tibiæ armed with a sharp spine at the apex; first segment of the posterior tarsi longer than the two following segments together; claws appendiculate: posterior femora strongly developed; prosternum very thin; anterior coxal cavities of the closed type, but less completely closed than in other representatives of the genus (see fig. 53, p. 137).

It may be remarked that the punctuation is coarser than in other species of the genus and the hairiness of the upper surface is different, being sparse; in two examples from Manipur only a few erect hairs are visible at the sides and apex, and on the basal part, of the elytra. The Manipur specimens are also somewhat larger than the type.

Length, 3–3½ mm.

BURMA: Ruby Mines (*Doherty*). ASSAM: Manipur (*Doherty*).

Type in the British Museum. Described from seven examples.

85. **Hespera rufithorax**, sp. nov.

Body oblong. Colour black: underside brownish-black; the three basal segments of the antennæ and the prothorax red-brown, which may vary from a lighter to a deeper shade.

Head broad, with the vertex impunctate, not covered with pubescence; with a longitudinal median impression which is crossed by a transverse impression just above the eyes; the elevation between the antennæ rounded, not very prominent; interocular space broad; eyes strongly convex. Antennæ extending to a little beyond the middle of the elytra; first segment long, club-shaped, second much shorter, third longer than second and a little shorter than fourth; the following segments moderately long and about equal to each other, also more hairy than the three basal segments. *Prothorax* broader than long, somewhat narrowed at the base, sides rounded, anterior and posterior margins almost straight; surface convex from side to side, hardly punctate, and sparsely covered with fine hairs. *Scutellum* small, triangular, covered with hairs. *Elytra* broader than prothorax, completely covered with greyish hairs, the latter arising from punctures. *Underside* sparsely covered with fine hairs, more shining than the upper side; prosternum very thin, almost concealed between the strongly convex anterior coxæ, the cavities of which are certainly closed behind, although at first sight they may not appear to be so. Legs slender; posterior femora incrassate; tibiæ cylindrical, each having a sharp, thin spine at the apex; hind

tibiæ longer than either the front or middle pairs; first segment of the posterior tarsi almost as long as the following segments together; claws minute, appendiculate.

Length, 3·5 mm.

BURMA: Tenasserim (*Doherty*). ASSAM: Patkai Hills (*Doherty*).

Type in British Museum. Described from two examples.

86. **Hespera lomasa** *, nom. nov.

Allomorpha sericea, Jacoby, Ann. Mus. Civ. Genova, xxxii, 1892, p. 934.

Dark brown, entirely clothed with golden-yellow pubescence; the apical segments of the antennæ and the apex of the posterior femora piceous.

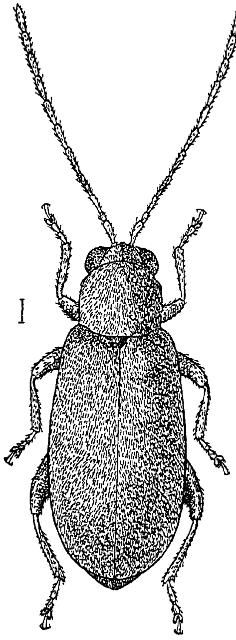

Fig. 55.—*Hespera lomasa*, Maulik.

Head pubescent like the rest of the body; eyes large, convex; the frontal elevations absent, as is characteristic of this genus. Antennæ slender, extending to nearly two-thirds the length of the elytra; first segment long and club-shaped, second small, much shorter than first, third longer than second; the remaining

* Sanskrit, "hairy." Since the name *sericea* is preoccupied by Weise's species (above, p. 139), *lomasa* is here proposed.

segments nearly equal. *Prothorax* broader than long, sides straight, anterior angles not produced, posterior angles widely rounded; surface not very convex; the clothing of dense pubescence obscures the punctuation. *Scutellum* piceous, triangular, pubescent. *Elytra* broader than prothorax, parallel-sided; surface not very convex; the pubescence obscures the punctuation. *Underside* thinly covered with fine hairs, breast more or less piceous, other structures as stated under the genus.

Length, 3 mm.

BURMA: Karen Hills (*Fea*). SOUTH INDIA: Nilgiri Hills (*H. L. Andrewes*). BOMBAY: Dharwar (Andrewes Coll.). CEYLON: Kandy, vii. 1905 (*G. E. Bryant*).

Type in the Genoa Museum. There is also an example marked "type" in the British Museum.

This species seems to have a very wide distribution. The Indian and Ceylonese specimens differ from the Burmese example only in that the general colour of the body is slightly darker.

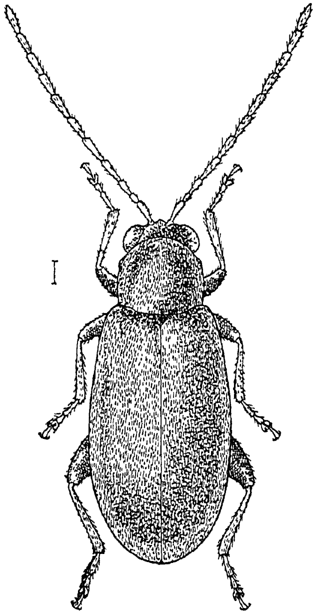

Fig. 56.—*Hespera nigripes*, Maulik.

87. **Hespera nigripes**, sp. nov.

Hespera nigripes, Weise MS.

Black, covered with fine silvery hairs. The three basal segments of the antennæ are in some examples yellow-brown, and

a tendency towards this yellow-brown colour may be recognised at the points of articulation of the appendages.

Head exserted, vertex covered with fine silvery hairs as are other parts of the upper surface of the body; other characters of the head as stated under the genus. Antennæ extending a little distance beyond the middle of the body; the relative lengths of the segments are as stated under the genus; the third segment in some examples appears to be not much longer than the second. *Prothorax* broader than long, its form and that of the anterior and posterior angles are as described under the genus; surface not very convex, punctate, the punctures being concealed by the pubescence. *Scutellum* triangular, punctate, pubescent. *Elytra* broader than prothorax, confusedly punctate, covered with silvery pubescence, which conceals the punctures. *Underside* also pubescent, but not so closely as the upper side. The anterior coxal cavities are of the closed type, although in this species also, owing to the thinness of the prosternum. the closure is not quite complete.

Length, 3 mm.

ASSAM: Khasi Hills (ex Kraatz Coll.). UNITED PROVINCES: Kumaon, Almora (*H. G. Champion*); Naini Tal, vi. and ix. 1917–1918 (*H. G. Champion*).

Type in the British Museum.

88. **Hespera krishna***, sp. nov.

Oblong, rounded behind. Completely black, covered with silvery hairs.

Head exerted, with the vertex strongly punctate and pubescent; other characteristics as is normal in this genus. Antennæ extending almost to the apex of the elytra (in this *H. krishna* differs from *H. nigripes*, in which the antennæ are shorter); first segment club-shaped and long, second much shorter than either first or third, the other segments almost equal. *Prothorax* shaped as is usual in the genus; surface more strongly and coarsely punctate than in *H. nigripes*. *Scutellum* small, triangular, hairy. *Elytra* broader than prothorax, as strongly punctate as the pronotum. *Underside* offering no special characteristics; the anterior coxal cavities are more nearly closed in this species than in some others. *H. krishna* is closely related to *H. nigripes*, but can be easily separated by its longer antennæ and stronger and coarser punctuation.

Length, 3 mm.

BURMA: Ruby Mines (*Doherty*). UNITED PROVINCES: Kumaon; Naini Tal; West Almora; Ranikhet (all *H. G. Champion*).

Type in the British Museum. Described from nineteen examples, of which three are from Burma.

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* Sanskrit, "black."

89. **Hespera dakshina** *, sp. nov.

Oblong. Entirely black, covered with rather long brownish-yellow pubescence.

This species closely agrees with what has been written in the description of the genus, but the following points call for notice: the antennæ extend to a little distance beyond the middle of the elytra; they do not appear so slender as in other species, the second segment is distinctly shorter than the third, the fourth almost equal to the third. The punctuation is less strong than in *H. krishna*, and seems to be slightly stronger than that of *H. nigripes*. The brownish pubescence is somewhat longer than the silvery-white pubescence of *H. nigripes*. When the insect is viewed from above, the last abdominal segment is generally visible.

Length, 4 mm.

S. India: Nilgiri Hills (*G. F. Hampson*).

Type in the British Museum. Described from seventeen examples.

SECTION III: SUBSECTION II.

Pronotum and elytra not pubescent; claw-segment of hind tarsi greatly dilated.

1. Elytral epipleura extraordinarily broad; antennæ long; surface of pronotum somewhat depressed, its margins flattened or slightly concave............	HYPHASIS, Harold, p. 145.
Elytral epipleura not so broad, antennæ not so long, pronotum convex	2.
2. A more or less deep impression on either side of the pronotum along its basal margin and a short longitudinal impression on each elytron within the humerus..........................	PHILOPONA, Weise, p. 148.
No such impressions on the pronotum or on the elytra	HYPHASOMA, Jac., p. 156.

Genus **HYPHASIS**, *Harold*.

Hyphasis, Harold, Deutsche Ent. Zeitschr. xxi, 1877, p. 434; Jacoby, Ann. Soc. Ent. Belg. xlvii, 1903, p. 110.

GENOTYPE, *Hyphasis magica*, Harold.

Body oblong-ovate. *Head* broader than long, vertex convex, narrow, interocular space narrow, frontal tubercles in the inter-antennal space well developed and with a longitudinal impression along the middle. Antennæ passing a little beyond the middle of the elytra, slender; first segment elongate, club-shaped, second very small, less than half the length of the first or the third; from the third to the seventh the segments are more or less nearly equal

* Sanskrit, "South."

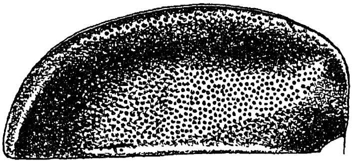

Fig 57.—*Hyphasis magica*, Har. Left elytron, showing the explanate margin

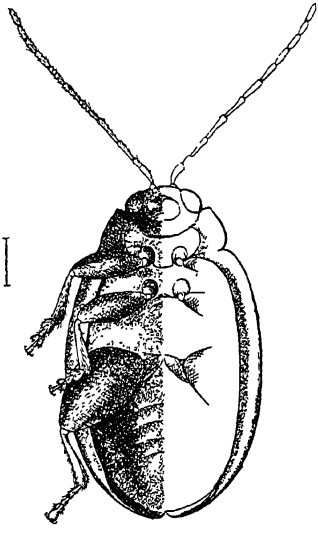

Fig. 58 .—*Hyphasis magica*, Har. Underside, showing breadth of epipleura.

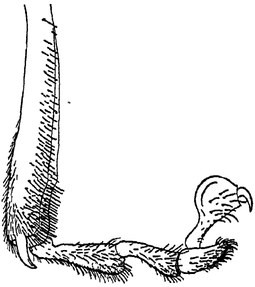

Fig. 59.—*Hyphasis magica*, Har. Lateral view of end of tibia and tarsus of hind leg, showing the dilatation of the claw-segment.

to each other in length, from the eighth to the eleventh they are shorter, the last being pointed; the whole antennæ are covered with pubescence. Eyes strongly convex. *Prothorax* much broader than long, upper surface somewhat depressed, the lateral margins somewhat explanate, the explanate portion being concave; anterior margin nearly straight, posterior slightly sinuate, anterior and posterior lateral angles rounded. *Scutellum* moderately large, triangular, with apex rounded. *Elytra* hardly broader at the base than the prothorax, the sides rather nearly parallel, with the margins slightly explanate and apex broadly rounded; surface closely, strongly and confusedly punctate. *Underside*: elytral epipleura extraordinarily broad; posterior femora with a channel on the underside; posterior tibiæ with a pointed spine at the apex; claw-segment of the posterior tarsi swollen; claws simple.

Owing to the shape and structure of the prothorax and the extraordinarily expanded epipleura of the elytra, Jacoby proposed to keep *Hyphasis* as a monotypic genus, with Harold's *magica*, from Darjeeling, as the type.

Range. The Eastern Himalayas.

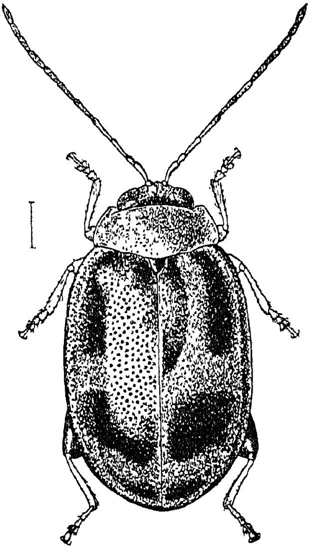

Fig. 60.—*Hyphasis magica*, Harold.

90. Hyphasis magica, *Harold.*

Hyphasis magica, Harold, Deutsche Ent. Zeitschr. xxi, 1877, p. 433.

Reddish brown, sometimes much lighter, subnitid; vertex of head blue-black; a large elongate blue-black patch common to

both elytra extends from the middle of the base along the suture to a certain distance, including the scutellum; and on each elytron there are a large humeral longitudinal patch, a large postmedian transverse patch and smaller apical patch, all blue-black.

Head: vertex convex, somewhat rugose, hardly punctate. *Prothorax* with the surface very finely punctate. *Scutellum* impunctate. The other structures are exactly as under the generic description.

Length, 6–7 mm.

SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*); Mungphu. BENGAL: Buxa, Duars (Pusa Coll.).

The location of the *type* is unknown to me.

In the short Latin original description, Harold designates this insect "*Oed. magica*," the title of the short paper being "Beschreibung einiger *Oedionychis*-Arten"; these latter are mostly from South America. Immediately after the description he proposes the genus *Hyphasis* owing to the presence of certain characters in this species. Evidently, then, he considered that *magica* belongs to a separate genus and not to *Oedionychis*.

Genus **PHILOPONA**, *Weise*.

Philopona, Weise, Archiv Naturgesch. lxix, Band i, 1903, p. 216.

GENOTYPE, *Philopona tibialis*, Weise (Africa).

Weise separated off the African and Indian species formerly placed in the genus *Oedionychis*, Latr., and erected for them the present genus (*Philopona*). It is characterised by possessing the following two features: (1) a transverse impression on each side of the pronotum on the basal margin (these two impressions may unite and form one impression), and (2) a longitudinal impression inside the humerus on each elytron.

These insects are generally oblong or oblong-ovate, sometimes parallel-sided. *Head* large, as broad as the width of the prothorax, with eyes strongly convex and vertex convex, the latter either coarsely or finely punctate, or impunctate; frontal elevations broad, always well developed and divided by a longitudinal median line, and separated from the vertex by a well-impressed transverse line, which may in some cases be angled in the middle; inter-antennal carina always developed (see, for instance, *Ph. mouhoti*, fig. 62, p. 154). Antennæ generally short, extending only a little distance beyond the base of the prothorax, sometimes reaching about the middle of the elytra, but never equal to the length of the body, not, at least, among our species; first segment always the longest, thickest and club-shaped; second always very short, but it may be thicker than the third, which is elongate and slender; third to fifth nearly equal, sixth and seventh equal but somewhat shorter than each of the preceding slender ones, eighth to eleventh again somewhat shorter but equal to each other; this is the general plan of the structure of the antennæ, but

there are slight variations as to the relative lengths of the segments; the antennæ are generally covered with slight pubescence, the basal three or four segments to a much less degree. *Prothorax* always much broader than long, upper surface more or less convex, generally very finely punctate; lateral margins always somewhat explanate and concave, more so than in *Hyphasoma*; the anterior lateral angles not so produced as in *Hyphasoma*; at each of the anterior and posterior angles is a fine seta arising from a pore with a slightly elevated base. *Scutellum* always triangular, with the surface always impunctate. *Elytra* somewhat broader at the base than the prothorax; upper surface confusedly punctate, the punctures being generally stronger than those of the pronotum, but in some cases the punctures are finer on the apical part; sides often slightly explanate, and sometimes the edges bear remotely distributed fine setæ. *Underside*: posterior femora strongly incrassate; posterior tibiæ generally short, ending in a sharp spine; first segment of posterior tarsi generally short, claw-segment always inflated; bilobed segment of the front and middle tarsi broad, broader than that of the posterior tarsi.

Range. Asia, Africa.

Key to the Species.

1. Elytra metallic greenish-blue	*Ph. birmanica*, Jac., p. 150.
Elytra not so coloured	2.
2. Elytra black, with a large round patch in the middle and an elongate area at the apex, yellow-brown	*Ph. mandala*, sp. n., p. 150.
Elytra not so coloured	3.
3. Elytra with the suture stained black ..	5.
Elytra with the suture not stained black........	4.
4. Elytra completely immaculate; length $8\frac{1}{2}$–9 mm.......................	*Ph. inornata*, Jac., p. 151.
Elytra with three round black spots, one on the humeral callus, one behind the middle, and one on the apical part near the suture; length 5–6 mm.	*Ph. nilgiriensis*, Jac., p. 152.
5. Suture completely, and margins all round the elytra (sometimes incompletely) narrowly, black; surface of elytra without spots or patches	*Ph. shima*, sp. n., p. 153.
Surface of elytra with spots and patches, suture black, margins all round not black	6.
6. Each elytron with three round black spots in a longitudinal line along the middle	*Ph. mouhoti*, Baly, p. 153.
Each elytron with five round spots ..	*Ph. decemmaculata*, sp. n., [p. 155.
Each elytron with a longitudinal stripe along the middle (sometimes incomplete)	*Ph. signata*, Duviv., p. 155.

91. Philopona birmanica, *Jacoby.*

Oedionychis birmanica, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 199.

Colour piceous: basal segments of antennæ flavous, distal segments fuscous; anterior and middle legs, posterior tibiæ and prothorax, flavous; elytra metallic dark greenish-blue, with the extreme lateral margin and the epipleura more or less distinctly flavous.

Head with some deep punctures on the vertex, the space round the inner margin of the eyes strongly rugose: frontal tubercles narrow and elongate, divided; clypeus transverse, with an acutely raised projection (more obtuse in the female) at its middle. Antennæ extending to about half the length of the elytra, third segment double the length of the second and longer than each of the following segments. *Prothorax* two and a half times broader than long; its sides moderately rounded and explanate, anterior angles slightly produced outwards and thickened, anterior and posterior margins nearly straight; upper surface irregularly and finely punctate, base obsoletely transversely depressed. *Scutellum* piceous, triangular. *Elytra* strongly and closely punctate. *Underside*: first segment of the posterior tarsi short, claw-segment strongly inflated; prosternum narrowly elongate, slightly raised.

The males of this species have the frontal tubercles elongate and consisting of two short elongate ridges, separated by a larger space than is usually the case; in the female these structures are broader, blunter and closely approximated, and the clypeus in this latter sex has its centre raised into a blunt tubercle, instead of a sharp ridge as in the male.

Length, $3\frac{3}{4}$–5 mm.

BURMA: Bhamo (*Fea*).

Type in the Genoa Museum. I have not seen the type.

92. Philopona mandala*, sp. nov.

Body ovate, somewhat broadened behind. General colour shining yellow-brown; antennæ, except the four basal segments, blackish; scutellum brown; elytra black, each with a large roundish patch in the middle and a large area at the apex, yellow-brown; labrum blackish; inner edges of epipleura of elytra black; centre of ventral surface of abdomen blackish.

Head with vertex impunctate; frontal tubercles divided by a longitudinal impression, which meets two oblique impressions separating them from the vertex. Antennæ hardly reaching the middle of the elytra; first segment the thickest and longest, club-shaped, second small, much shorter but thicker than third;

* Sanskrit, "round."

from the third to the seventh the segments are more or less nearly equal to each other; eighth to eleventh shorter but equal. *Prothorax* much broader than long; upper surface convex, very finely and remotely punctate; a transverse basal depression is present, the lateral margins are broadly explanate and concave, the sides rounded, the anterior and posterior angles ending in a blunt point. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* slightly broader at base than prothorax: lateral margins somewhat explanate, their edges bearing remotely distributed, fine, horizontal, silvery hairs; surface confusedly, strongly and closely punctate, the punctures being finer on the apical part. *Underside*: surface of the sternites scattered over with fine silvery hairs; posterior femora strongly incrassate; posterior tibiæ short, ending in a spine; first segment of the posterior tarsi very short, their claw-segment inflated.

Length, $4\frac{1}{2}$ mm.

ASSAM: Sadiya (*Doherty*).

Type in the British Museum. Described from one example.

93. Philopona inornata, *Jacoby.*

Oedionychis inornata, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 261.

Body nearly parallel-sided and rather depressed. Colour obscure pale fulvous or testaceous, antennæ pale, posterior claw-joint piceous.

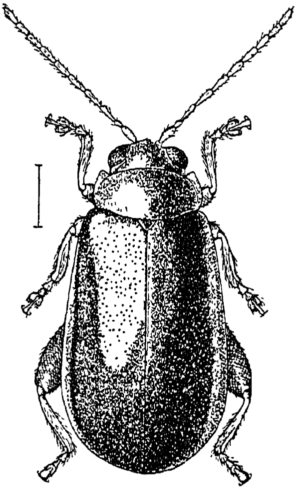

Fig. 61.—*Philopona inornata*, Jac.

Head impunctate; space separating the eyes slightly wider than their diameter; frontal tubercles small, but slightly raised;

clypeus very short, transversely raised. Antennæ not extending to the middle of the elytra; basal segment thickest, club-shaped, second small, half the length of the first or third, third, fourth and fifth almost equal in length, sixth somewhat shorter than fifth and equal to the next; eighth to eleventh each shorter than the preceding segments and equal to each other. *Prothorax* more than twice as broad as long; sides moderately rounded with a rather broad, explanate, concave margin, anterior angles very slightly produced and thickened, posterior almost right angles, posterior margin almost straight; surface, seen under a high power, indistinctly and finely punctate. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* somewhat broader at base than prothorax, extremely minutely finely and confusedly punctate, their epipleura broad at base and deeply concave. *Underside* finely and sparsely pubescent; posterior femora strongly incrassate; first segment of posterior tarsi scarcely longer than the second segment, their claw-segment strongly inflated; prosternum narrow, not sulcate.

Length, 8½–9 mm.

BELGAUM. NILGIRI HILLS (*G. F. Hampson*).

Type in the British Museum.

94. **Philopona nilgiriensis**, *Jacoby*.

Oedionychis nilgiriensis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 110.

Body testaceous; the four basal segments of the antennæ testaceous, the rest piceous or black; scutellum black; a spot on the shoulder, another behind the middle and a third at the apex on the suture of each elytron, black.

Head flat except for two oblique impressions and a median depression, and with a few punctures between the eyes; frontal elevations obsolete; palpi thickened. Antennæ comparatively short; first segment thickest, second very short, third, fourth and fifth segments almost equal in length; the following shorter, as is usual in the genus. *Prothorax* more than twice broader than long, with explanate, concave and rounded sides, anterior and posterior angles acute but not produced, posterior margin somewhat sinuate; upper surface entirely impunctate, obsoletely transversely sulcate near the base. *Scutellum* triangular with the surface impunctate. *Elytra* slightly broader at base than prothorax, very finely and closely punctate, nearly parallel-sided but somewhat broadened behind. *Underside*: posterior tibiæ with a slight emargination at the apex; tarsi short, claw-segment strongly inflated; the inflated portion in transmitted light is of a brilliant golden colour.

This species is of almost similar coloration as *O. mouhoti*, Baly, from Burma, Siam, etc., but has the terminal segments of the antennæ dark, the elytra more distinctly punctate and without

the black suture, and the intermediate and posterior black spots differently situated.

Length, 5–6 mm.

NILGIRI HILLS.

Type in the British Museum.

95. **Philopona shima** *, sp. nov.

Body oblong with the sides almost parallel and the apex broadly rounded. General colour yellow-brown, the suture and elytral margins all round, with their epipleura, black or dark pitch-brown; scutellum piceous, edged with deeper colour; of the two examples before me the one from the Karen Hills has the antennæ blackish, except the three basal segments, and the colour of the suture and elytral margins is lighter than in the other specimen.

Head with vertex convex and impunctate, frontal elevations well developed and divided by a longitudinal median line, interantennal carina large and rounded. Antennæ extending to the middle of the elytra; first segment the longest, club-shaped, second thickened but very short, third to seventh almost equal to each other in length, eighth to eleventh shorter but equal to each other. *Prothorax* much broader than long; upper surface very finely and remotely punctate, the punctures being seen under a high power and in a suitable light; basal transverse depression broad, extending across the whole breadth; the lateral margins explanate and concave, sides more or less rounded, anterior lateral angles rounded, posterior almost right angles. *Scutellum* triangular, with the apex rounded and the surface impunctate. *Elytra* broader at base than prothorax, their surface confusedly, closely and strongly punctate, the punctures tending to become finer on the apical part. *Underside* covered with fine silvery hairs; posterior tibiæ short, terminating in a sharp spine; first segment of the posterior tarsi short, claw-segment considerably inflated.

Length, 4½ mm.

BURMA: Momeik (*Doherty*); Karen Hills (*Doherty*).

Type in the British Museum. Described from two examples The example from Karen Hills differs slightly from the other in coloration, as described above.

96. **Philopona mouhoti**, *Baly*.

Oedionychis mouhoti, Baly, Ann. Mag. Nat. Hist. (5) i, 1878 p. 316.

Body oblong. Colour shining dirty brown; underside black or piceous; scutellum, suture and three round spots in a longitudinal line commencing from the humerus (one on the humerus, the

* Sanskrit, "boundary" or "limit."

second about the middle of the eltryon and the third on the apical part), black.

Head with vertex minutely punctate, and front impressed with large foveolate punctures; carina between the antennæ wedge-shaped, its acute apex extending upwards between the frontal elevations and its base terminating on a strongly raised transverse ridge, which extends obliquely on either side entirely across the clypeus. Antennæ hardly reaching the middle of the elytra; first segment long, club-shaped, second very short, scarcely half the length of the first, the latter longer than the third, which is longer than the second and equal to the fourth; the rest of the segments more or less nearly equal to each other and not very much shorter than the fourth. *Prothorax* more than twice broader than long; lateral margins broadly explanate, their edges reflexed, straight and parallel for two-thirds of their length,

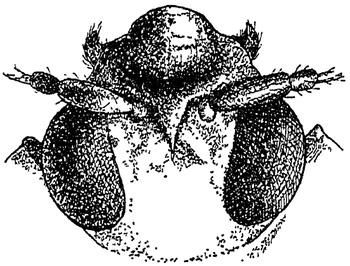

Fig. 62.—*Philopona mouhoti*, Baly. Head, showing the ridge between the antennæ.

arcuate and converging towards the front end, which is produced and armed at its extremity with a truncate tooth, curved slightly outwards; basal margin sinuate on either side near the outer angle, truncate in its middle part; upper surface with a shallow depression in front of the basal margin, minutely and remotely punctate. *Scutellum* small, triangular, with apex rounded and surface impunctate. *Elytra* hardly broader at base than prothorax, their lateral margins narrowly explanate and with edges reflexed; surface strongly, closely and confusedly punctate. *Underside*: the parts are as described under the genus.

Length, $6\frac{1}{2}$–$7\frac{1}{2}$ mm.

SIAM (type-locality). PERAK. BURMA: Momeik (*Doherty*); Toungoo; Paungde, Prome District.

Type in the British Museum.

There is a certain amount of variation in the black markings, which in some specimens are much lighter.

97. **Philopona decemmaculata**, sp. nov.

Body oblong-ovate, somewhat broadened behind the middle. General colour shining yellow-brown; scutellum piceous; each elytron with five round black spots: two placed side by side at the base; two others, somewhat larger and similarly placed, just behind the middle; and one small spot on the apical part, near the suture. In one example these spots are obsolescent. The suture for a little distance from the base is somewhat darker than the yellow-brown ground-colour.

Head with vertex finely punctate, frontal elevations and interantennal carina well developed. Antennæ extending a little distance beyond the base of the prothorax, but not reaching the middle of the elytra; first segment the longest and thickest, club-shaped, second very short and thick, third to fifth slender and almost equal to each other, sixth and seventh equal to each other, eighth to eleventh somewhat shorter and slightly thicker, but equal to each other. *Prothorax* much broader than long, upper surface finely and minutely punctate, basal transverse depression extending right along the basal margin, lateral margins explanate and concave, sides more or less rounded, anterior angles produced, posterior angles almost right angles. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* broader at base than prothorax; upper surface confusedly, closely and strongly punctate; lateral margins somewhat explanate and concave. *Underside* sparsely covered with fine pubescence; posterior tibiæ short, ending in a small sharp spine; first segment of posterior tarsi very short, claw-segment considerably inflated.

Length, 4–4¼ mm.

TRAVANCORE: Wallardi, 5. ix. 1904 (*R. P. Favre*).

Type in the British Museum. Described from two examples.

98. **Philopona signata**, *Duvivier*.

Hyphasis signata, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 429.

Body oblong-ovate. General colour yellow-brown; scutellum piceous; the antennæ (except the two or three basal segments), a long stripe on each elytron extending from the depression within the humeral callus to the apical part, but not reaching the apical margin, the suture narrowly, the breast and the apices of the posterior femora, pitchy-black; the pitchy colour varies in intensity, and in some cases the elytral stripe is interrupted, but can be faintly discerned. The pronotum in some examples has a diffused pitchy-black colour on parts of the surface. The labrum is black, also sometimes a small area in the middle of the vertex.

Head with vertex strongly punctate (except a little elevated area in the middle, which is impunctate), the punctures being deep pits, sometimes confluent with each other; interocular space

broad and rough; interantennal space comparatively broad, with one broad longitudinal elevation. Antennæ extending only a little distance beyond the base of the prothorax, and slightly thickened towards the apex; first segment long, thickened and club-shaped, second very short, third slender, longer than fourth; from the fifth to the eleventh the segments are shorter, somewhat more thickened, and sparsely covered with hairs. *Prothorax* broader than long; upper surface convex, rough, impressed with smaller and larger punctures; lateral margins comparatively broadly explanate, sides not well rounded though converging towards the anterior and posterior angles, each of which is produced to a blunt point; transverse impression in front of the basal margin broad and punctate. *Scutellum* small, triangular, broader than long, impunctate, with apex rounded. *Elytra* broader at base than prothorax, confusedly, closely and strongly punctate, the punctures being finer towards the apex. *Underside* finely punctate, shining.

Length, $3\frac{1}{2}$–$4\frac{1}{2}$ mm.

CHOTA NAGPUR: Koubir (*Père Cardon*, type-locality); BARWAY (*Père Cardon*). BOMBAY: Belgaum (Andrewes Coll.). PUNJAB: Kangra Valley, 4500 ft., vi. 1898 (*Dudgeon*, Brit. Mus.). CENTRAL PROVINCES: Sindevai, Chandra District, 15. x. (*C. S. Misra*, Pusa Coll.). ASSAM: Mazbat, Mangaldai District, 11–15. x. 1910 (*Kemp*, Ind. Mus.). BENGAL: Rajmehal, 5. vii. 1909 (*Annandale*).

This species was first described from one example from Koubir, collected by Père Cardon. In the British Museum there is a specimen, also collected by Père Cardon, from Barway, and this specimen bears the identification label "*signata*" in Jacoby's handwriting. The examples from various other localities listed above are referred to this species after comparison with the specimen labelled by Jacoby.

Type in the Brussels Museum.

Oedionychis japonica, Baly (which must be referred to *Philopona*), has a strong resemblance to *Ph. signata*; it is possible that they are the same species, but for the present, without further evidence, it is convenient to treat *Ph. signata* as a purely Indian species, having a wide distribution within that region, and evidently variable.

Genus **HYPHASOMA**, *Jacoby*.

Hyphasoma, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 110.

GENOTYPE: in proposing this genus Jacoby did not designate a genotype: he described three species, viz. *H. inconspicua*, *H. submetallica* and *H. discipennis*, after the diagnosis of the genus. *H. inconspicua*, Jac., is here designated as the genotype.

Body oblong-ovate. *Head* as broad as the width of the prothorax; vertex somewhat convex and usually impunctate, antennæ generally close together, with the carina between them well

developed, frontal elevations also well developed; mouth-parts prominent, well developed; sometimes the surface of the head immediately behind the clypeus is concave. Antennæ usually slender, moderately long, reaching to between the middle and about three-fourths of the length of the elytra; first segment always the longest, second generally the shortest, third usually longer than second; often the third and fourth are equal, but their relative lengths vary; the following segments are more or less nearly equal to each other, with the apical segments, viz. eighth to tenth, tending to become smaller; last segment always bluntly pointed; very rarely the apical segments are very slightly thicker than the basal; the antennæ are generally covered with fine hairs, but always less so on the three basal segments. *Prothorax* always much broader than long, with sides generally rounded; anterior and posterior lateral angles each bearing a fine seta which arises from a pore; at this point the surface is somewhat thickened, more so at the anterior angles than at the posterior; upper surface somewhat convex, sometimes distinctly punctate, while sometimes the punctures are so fine that they are not clearly visible unless a high power is used in a suitable light; the lateral margins are often somewhat explanate with edges reflexed, but this condition is less pronounced than in the genus *Hyphasis*. *Scutellum* always triangular, varying in dimensions; surface always impunctate. *Elytra* usually broader at the base than the prothorax, although they broaden behind; humerus rounded, not prominent and without any longitudinal impression on its inner side: surface always confusedly punctate, the punctures being more conspicuous in some cases than in others, and sometimes stronger on the basal part than on the apical; lateral margins sometimes slightly explanate with edges reflexed; epipleura not so broad as in *Hyphasis*, and often concave. *Underside*: prosternum oblong or narrowly oblong, with the apex truncate and the surface flat or longitudinally concave; tibiæ channelled on their dorsal side, those of the posterior pair with apex emarginate and armed with an acute spine, the others without a spine at the apex; posterior tarsi with the first segment equal to or greater than the next two together, claw-segment always inflated or dilated: claws appendiculate; posterior femora strongly incrassate.

Owing to the shape of the prothorax (which is strongly transverse and somewhat depressed, with broadly explanate and flattened margins) and the extraordinary breadth of the epipleura of the elytra, Jacoby separated *Hyphasoma* from *Hyphasis*.

In this genus it often happens that a species may have some individuals very light in colour while others are much deeper; this renders identification difficult when a single individual is caught. I believe that several species have a very wide distribution, and their proper determination becomes a matter of great difficulty.

Range. India, Burma, Malay Peninsula and the adjacent islands, Japan.

Key to the Species.

1. Elytra metallic greenish-blue or greenish-blue-black .... 2.
   Elytra without such colour .... 4.
2. Small insects, never longer than $2\frac{3}{4}$–3 mm. .... *H. bevani*, Baly, p. 159.
   Insects always longer than $2\frac{3}{4}$–3 mm. .... 3.
3. Prothorax and legs yellowish, elytra strongly punctate at the base: length 5 mm. .... *H. nilapita*, sp. n., [p. 160.
   Prothorax and legs piceous, elytra finely punctate at the base; length 6 mm. .... *H. submetallica*, Jac., [p. 161.
4. Pronotum yellow-brown with four round black spots .... *H. thoracica*, Jac., [p. 162.
   Pronotum without four black spots .... 5.
5. General colour piceous, elytra with a large yellowish oblong-ovate patch .... *H. balyi*, Jac., p. 162.
   Elytra without such a patch .... 6.
6. Uniform fawn-brown above, without speckles; suture and margins of the elytra all round completely stained with black .... *H. tenuilimbatus*, Jac., [p. 163.
   No such combination of characters .... 7.
7. General colour testaceous, pronotum and elytra similarly and strongly punctate, upper side of apex of posterior femora black; length 5 mm. .... *H. femoralis*, Jac., [p. 164.
   No such combination of characters .... 8.
8. Length never less than $7\frac{1}{2}$–9 mm.; general colour brown or testaceous .... 9.
   Length always less than $7\frac{1}{2}$ mm. .... 10.
9. Elytral punctures raised; length $8\frac{3}{4}$ mm. (unique example) .... *H. distincta*, Jac., [p. 164.
   Elytral punctures not raised .... *H. indica*, Baly, p. 165.
10. General colour above uniform brown, which varies from paler to darker shades .... 15.
    General colour above brown, with the elytra of much deeper colour, *i. e.* fuscous, piceous or deep brownish-black .... 12.
    General colour above dirty brown, generally mixed with grey and mottled with blackish specks .... 11.
11. Body more or less nearly parallel-sided, suture and basal margin of elytra stained with blackish-brown; first segment of posterior tarsi not longer than the two following segments together .... *H. sita*, sp. n., p. 166.
    Body more broadened behind, suture and basal margin of elytra not stained; first segment of posterior tarsi longer than the two following segments together .... *H. dhusara*, sp. n., [p. 167.
12. Body narrowly oblong, $3\frac{1}{2}$ mm. long; pronotum as strongly punctate as the surface of the elytra .... *H. obscuripennis*, Jac., [p. 168.

	Body broader, more than $3\frac{1}{2}$ mm. long; pronotum less strongly punctate than the surface of the elytra..................	13.
13.	Elytra broad, piceous with a marginal fulvous band; length 4 mm.	*H limbatipennis*, Jac. [p. 169.
	Elytra with no marginal fulvous band....	14.
14.	Body ovate with the elytral margins reflexed; elytra blackish with reflexed edges brown (typical form), otherwise uniformly coloured; length $5-5\frac{1}{2}$ mm. ..	*H. discipennis*, Jac., [p. 169.
	Body more nearly parallel-sided, elytral margins not reflexed; the piceous colour of the elytra lighter in the middle; length 4 mm.........................	*H. discoidalis*, Jac., [p. 170.
15.	Third segment of antennæ shorter than fourth	16.
	Third segment of antennæ not shorter than fourth	17.
16.	Antennæ extending to the middle of the body	*H. parvula*, Jac., [p. 170.
	Antennæ as long as, or exceeding, three-fourths of the body	*H. nigricornis*, Jac., [p. 171.
17.	Antennæ with the three basal segments differently coloured from the remaining segments; body elongate..............	*H. inornata*, Jac., [p. 172.
	Antennæ with the three basal segments of the same colour as the remainder; body ovate, not elongate	18.
18.	Body broadly ovate, colour pale brown; antennæ as long as three-fourths of the body	*H. unicolor*, Jac., [p. 172.
	No such combination of characters	19.
19.	Interantennal carina sharply raised	*H. intermedia*, Jac., [p. 173.
	Interantennal carina broader............	*H. inconspicua*, Jac., [p. 173.

99. Hyphasoma bevani, *Baly.*

Hyphasis bevani, Baly. Ann. Mag. Nat. Hist. (5) i, 1878, p. 315.

Body ovate. Head, prothorax, scutellum, the three or four basal segments of the antennæ, and the legs (except the apex of the femora), brown; scutellum brown, edged with black; apical segments of antennæ black; underside piceous; elytra obscure greenish-blue-black, the inflexed lateral margins of the elytra narrowly edged with black.

Head with vertex impunctate; frontal elevations contiguous, well defined, separated from the front by a transverse impression, the interantennal carina thickened. Antennæ extending to about the middle of the elytra; first segment elongate, club-shaped, second shorter, these two somewhat thicker than the following segments, which are more or less nearly equal to each other. *Prothorax* much broader than long, sides slightly rounded, anterior lateral angles thickened, broadly and obtusely truncate, oblique; upper side transversely convex, distinctly punctate, the punctures

being very fine; lateral margins moderately dilated, reflexed. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* slightly broader at the base than the prothorax, but generally broader behind; surface rather strongly and closely punctate, lateral edges inflexed and slightly concave. *Underside*: prosternum oblong-quadrate, its lateral margins concave, its apex

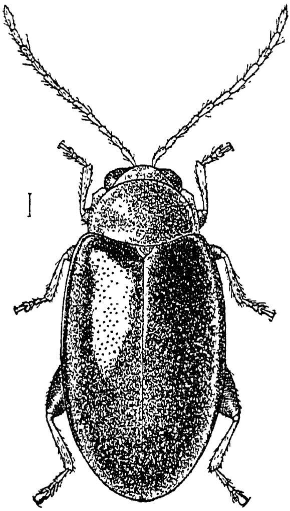

Fig. 63.—*Hyphasoma bevani*, Baly.

truncate and the surface nearly flat: outer edge of the posterior tibiæ serrulate near the apex; basal segment of the posterior tarsi slightly longer than the following two together.

Length, 2¾ mm.

SOUTHERN INDIA (type-locality). TENASSERIM: Tavoy (*Doherty*). PERAK (*Doherty*). PENANG (*Doherty*).

Type in the British Museum.

100. **Hyphasoma nilapita** *, sp. nov.

Body oblong-ovate. Elytra greenish-blue-black; scutellum black; prothorax and legs yellowish, posterior femora darker in the middle and at the apex; the three basal segments of the antennæ brown, the rest blackish; underside brown, the central parts of the abdominal sternites darker.

* Sanskrit, "blue-yellow."

Head with vertex impunctate, interantennal carina and frontal elevations broad, separated from the vertex by an impressed transverse line. Antennæ extending just beyond the middle of the elytra; first segment long and club-shaped, second small, shorter than either first or third, the next four segments almost equal to each other, eighth to eleventh somewhat shorter, but equal to each other in length. *Prothorax* much broader than long, upper surface very finely and remotely punctate, lateral margins somewhat explanate and reflexed, sides sloping, anterior angles not produced. *Scutellum* large, triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at the base than the prothorax, confusedly punctate, the punctures being stronger and closer towards the base, much finer and more remote towards the apex. *Underside* shining, smooth, sparsely covered with fine hairs.

Length, 5 mm.

TRAVANCORE: Wallardi, 5. ix. 1905 (*R. P. Favre*). MALABAR COAST: Mahé (*M. Maindron*).

Type in the British Museum. Described from three examples.

101. Hyphasoma submetallica, *Jacoby*.

Hyphasoma submetallica, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 111.

Body broadly oblong-ovate. Colour of underside, head and prothorax obscure testaceous to piceous; antennæ, apex of femora, tibiæ and tarsi black; elytra metallic dark bluish; scutellum blackish.

Head impunctate, frontal tubercles well developed, clypeus triangularly depressed in front. Antennæ slender; first segment elongate, club-shaped, second small, nearly half the length of the first or the third, the latter and the following segments almost equal to each other in length, except the eighth, ninth and tenth, which are somewhat shorter. *Prothorax* broader than long, sides rounded with a narrow reflexed margin, anterior angles slightly produced outwards; surface almost impunctate, though under a high power a few very fine punctures are visible. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* broader at base than prothorax, very finely and closely punctate in front, the posterior portion nearly impunctate. *Underside* very finely pubescent; tibiæ deeply sulcate; first segment of hind tarsi as long as the two following segments together; claw segment moderately swollen; prosternum deeply longitudinally sulcate.

Length, 6 mm.

NILGIRI HILLS.

Type in the British Museum.

102. Hyphasoma thoracica, *Jacoby.*

Hyphasis thoracica, Jac.. Ann. Soc. Ent. Belg. xl, 1896, p. 262.

Body broadly oblong-ovate. Colour of head and prothorax yellow-brown, the former with an ill-defined black spot at the vertex, the latter with four round black spots in a curved transverse line, the two middle spots slightly further forward than the lateral spots. Antennæ black, except the two basal segments, which are obscurely fulvous; elytra chestnut-brown with yellowish epipleura; scutellum yellowish; breast and legs blackish, middle parts of the abdominal sternites piceous.

Head impunctate, frontal elevations narrowly transverse, carina acutely raised, lower portion of face rather elongate, clypeus broad: penultimate segment of palpi incrassate, terminal segment acute. Antennæ extending to the middle of the elytra; first segment elongate, club-shaped, second somewhat shorter than third, the latter slightly shorter than the fourth and each of the following segments, which are more or less nearly equal to each other. *Prothorax* about one millimetre broader than long, sides strongly rounded, with a narrow reflexed margin, anterior angles thickened: surface sparingly and finely punctate. *Scutellum* very broad, triangular, with the surface impunctate. *Elytra* somewhat convex, very finely but not very closely punctate. *Underside*: first segment of the posterior tarsi longer than the two following segments together; tibiæ deeply channelled, with a sharp spine at the apex.

Length, 5½ mm.

BOMBAY: Belgaum; Kanara (Andrewes Coll.).

Type in the British Museum.

103. Hyphasoma balyi, *Jacoby.*

Hyphasis balyi, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 938.

Body oblong-ovate. Colour piceous, underside somewhat lighter; antennæ with the two basal segments yellow-brown, the rest black; surface of the elytra piceous, with a large yellowish oblong-ovate patch; scutellum dark fulvous or piceous.

Head: vertex with a few very fine punctures, frontal tubercles broad, strongly raised, eyes very large, clypeus abruptly declivous. Antennæ extending to half the length of the elytra; first segment very long, second less than half the length of first and shorter than third, the latter somewhat shorter than the fourth, which is almost equal to the fifth; the following segments more or less nearly equal and each not much shorter than the fifth. *Prothorax* a little more than twice as broad as long, sides round, lateral margins explanate, the edges being reflexed, anterior angles produced outwards, posterior rounded; upper surface convex and sloping down at the sides, finely and more or less closely punctate. *Scutellum* comparatively broadly triangular, with apex rounded

and surface impunctate. *Elytra* hardly broader than the prothorax at the base, their surface confusedly, closely and finely punctate throughout, on the yellowish patch the punctures are dark centered; edges of the lateral margins slightly explanate and reflexed. *Underside* sparsely covered with whitish pubescence; posterior femora considerably thickened; claw-segment of the posterior tarsi dilated as usual.

Length, 6 mm.

BURMA: Karen Mts., v–xii. 1888 (*L. Fea*).

One example in the British Museum, bearing a name label in Jacoby's handwriting, is marked "type," but as the species was described from several examples the Genoa Museum may also claim to possess the actual type, although there is no doubt that the British Museum example is one of those from which the original description was drawn up.

This species resembles *H. bipustulata*, Baly, in colour, but the frontal tubercles in *H. balyi* are more strongly raised, the prothorax is more closely punctate and the elytral patch is more elongate; in *H. bipustulata* this patch lies wholly behind the middle.

104. Hyphasoma tenuilimbatus *, *Jacoby*.

Hyphasis tenuilimbatus, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 262.

Body oblong; colour uniform fawn-brown †; antennæ (excepting the three basal segments, which share the colour of the body) black; suture and elytral margins all round, narrowly black.

Head impunctate, eyes large, frontal elevations strongly raised, triangular, carina short and blunt, clypeus deflexed. Antennæ extending to the middle of the elytra; basal segment elongate, club-shaped, second short, half the length of the first or third; all the other segments are more or less nearly equal except the eighth, ninth and tenth, which are slightly shorter; Jacoby's statement, "third joint one-half shorter than the fourth," is incorrect. *Prothorax* transverse, much broader than long, sides evenly rounded, with a narrow reflexed margin, anterior angles thickened and slightly produced outwards; surface rather convex, almost impunctate, shining. *Elytra* parallel-sided, finely and closely punctate, their epipleura deeply concave. *Underside*: posterior femora greatly dilated; first segment of the posterior tarsi as long as the two following segments together.

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* Jacoby wrote the specific name thus, with a masculine termination, although the species immediately following, on the same page, was written *Hyphasis thoracica*, and he seems to have always treated *Hyphasis* elsewhere as a feminine word.—ED.

† One example has a few blackish spots, but these are apparently accidental

Length, 6 mm.
BOMBAY: Kanara.
Type in the British Museum.

105. Hyphasoma femoralis, *Jacoby*.

Hyphasis femoralis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 198.

Body rounded-ovate. Colour testaceous; antennæ (the three basal segments excepted) and the upper side of the apex of the posterior femora, black.

Head with vertex impunctate, frontal elevations broadly transverse, bounded behind by a deep impression. Antennæ extending beyond the middle of the elytra; first segment long and club-shaped, second small, shorter than either first or third, the following segment more or less nearly equal. *Prothorax* much broader than long, sides rounded, narrowly explanate in front, anterior angles thickened and distinctly produced outwardly, posterior margin rounded; upper surface remotely, finely and distinctly punctate. *Scutellum* small, broad, triangular, with apex broadly rounded and surface impunctate. *Elytra* hardly broader at base than prothorax, rather convex, their epipleura concave; punctuation like that of the pronotum. *Underside*: posterior femora strongly dilated; first segment of posterior tarsi as long as the two following segments together.

Length, 5 mm.

BURMA: Bhamo, vi. 1895 (*L. Fea*). MALABAR COAST: Mahé, viii. 1901 (*M. Maindron*). BIHAR: Pusa, 28. viii. 1916, on leaves of *Anisomeles ovata*.

Type in the Genoa Museum.

There are two examples in the British Museum bearing an identification label in Jacoby's handwriting, and a locality label with the word "Calcutta." Whether the insects were actually taken at Calcutta is, however, doubtful.

106. Hyphasoma distincta, *Jacoby*.

Hyphasis distincta, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 936.

Broadly ovate. Colour pale testaceous; antennæ fuscous, except the three basal segments, which are testaceous.

Head impunctate, frontal elevations broadly transverse. Antennæ scarcely extending to the middle of the elytra, third and fourth segments equal. *Prothorax* about two and a half times broader than long, sides strongly rounded with margin flattened, anterior angles produced outwards; upper surface rather convex, not perceptibly punctate. *Elytra* broadly ovate, closely and rather strongly punctate, the punctures raised. *Underside*: first segment of posterior tarsi as long as the

following three together. The raised condition of the elytral punctures is a peculiar character.

Length, $8\frac{3}{4}$ mm.

BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum. It is a unique example, which I have not seen.

107. Hyphasoma indica, *Baly*.

Hyphasis indica, Baly, Cist. Ent. ii, 1879, p. 442.

Ovate, moderately convex. Colour pale brown, with the elytra sometimes darker.

Head smooth, impunctate; interantennal space raised into a sharp carina, which is continued between the interocular

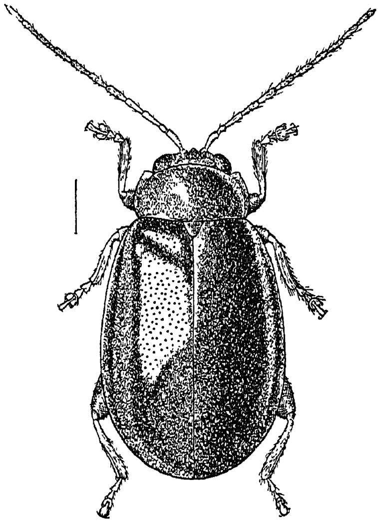

Fig. 64.—*Hyphasoma indica*, Baly.

elevations; the latter are transverse and separated from the vertex by a deep transverse impression. Antennæ slender, reaching the middle of the elytra; first segment long and club-shaped, second small, half the length of the first or third, which latter is equal to the fourth; the following segments hardly shorter and almost equal to each other in length. *Prothorax* much broader than long, sides margined, rounded, anterior lateral angles thickened, hind angles broadly rounded; upper surface moderately convex, almost impunctate, but under a high power a few fine scattered punctures are visible; lateral margins

somewhat explanate and with edges reflexed; there are no impressions along the basal margin. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* somewhat broader at base than prothorax, gradually and slightly broadened behind; surface moderately convex, flattened at the suture, distinctly but not very closely punctate; lateral margins slightly and narrowly explanate, their edges being reflexed. *Underside*: prosternum twice as broad as long, with sides parallel, apex truncate, and surface longitudinally concave.

Length, 7½–9 mm.

ASSAM (type-locality); Sadiya (*Doherty*); Patkai Mts. (*Doherty*); Manipur (*Doherty*). BURMA: Ruby Mines (*Doherty*). SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*); Mungphu (*Atkinson*).

Type in the British Museum.

108. **Hyphasoma sita** *, sp. nov.

Body oblong, more or less parallel-sided. Colour dirty brown, mottled with blackish specks; the basal margin, suture and sides of the elytra and the edges of the scutellum are to a certain extent stained with brownish-black, but very often this dark

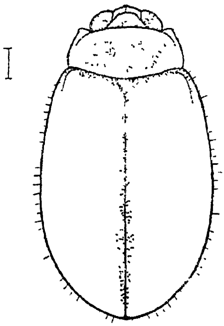

Fig. 65.—*Hyphasoma sita*, Maulik.

colour is interrupted; distal segments of the antennæ, from the fourth onwards, somewhat darker than the basal segments; underside coloured like the upper side.

Head with vertex impunctate, frontal elevations broad and interantennal carina well developed. Antennæ a little shorter than the body; first segment long and club-shaped, second shorter than either first or third; the following segments are almost equal. *Prothorax* much broader than long, sides rounded; surface convex, sloping at the sides in front, very finely and remotely punctate, the punctures being visible under a high power and in a suitable light; lateral edges reflexed, anterior

* Sanskrit, "furrow."

angles not produced. *Scutellum* small, triangular, impunctate. *Elytra* broader than the prothorax at the base, more or less parallel-sided behind this; surface confusedly and closely punctate with moderately strong punctures; there is a fringe of remotely placed setæ all round the edge. *Underside* finely pubescent; first segment of posterior tarsi not longer than the two following segments together.

Length, 5¼ mm.

CEYLON: Kandy, vi. 1908 (*G. E. Bryant*).

Type in the British Museum.

Described from five examples. There is a sixth example, which is somewhat larger but of the same shape; it is entirely dark pitch brown, but this coloration may be due to the extension and confluence of the normal dark mottlings.

109. Hyphasoma dhusara *, sp. nov.

Body suboblong, somewhat wider behind. Colour dirty grey-brown; the five specimens before me are all mottled with black, and three of them have a generally darker shade; underside dirty grey mixed with blackish colour, some parts being darker than others; distal segments of antennæ slightly darker than the basal three.

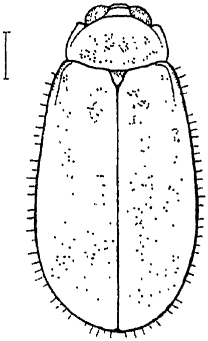

Fig. 66.—*Hyphasoma dhusara*, Maulik.

Head with vertex impunctate, frontal elevations broad, inter-antennal carina well developed. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second shorter than either first or third; the following segments almost equal. *Prothorax* much broader than long; surface convex, sloping down at the sides in front, very minutely and remotely punctate, the punctures being visible under a high power and in a suitable light; lateral edges slightly reflexed, anterior angles

* Sanskrit, "grey colour."

not produced. *Scutellum* large, triangular, with surface impunctate. *Elytra* broader at base than prothorax, somewhat widened behind; there is a fringe of fine, remotely placed setæ along the edge all round; surface closely, finely and confusedly punctate. *Underside* covered with fine pubescence; first segment of posterior tarsi longer than the two following segments together.

Length, 5½–6½ mm.

CEYLON: Kandy, vii and ix. 1908 (*G. E. Bryant*); one specimen was taken in September, the remainder in July.

Type in the British Museum. Described from five specimens.

The darker specimens of this species (which are smaller than the others) greatly resemble *H. tenuilimbata*, Jac., in general form. In one example the suture and the basal margins of pronotum and elytra and to a certain extent the sides of the latter are suffused with black, and in another there are traces of the black suffusion at the sides only. It is quite possible that the present species and *H. tenuilimbata* may be identical; the separation of the two is based on the latter having the suture and margins all round completely stained with dark colour, and the surface of the elytra without the mottling.

110. Hyphasoma obscuripennis, *Jacoby*.

Hyphasis obscuripennis, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 122.

Body narrowly oblong. Colour obscure testaceous; antennæ blackish, with the three basal segments more or less fulvous; elytra darker than the pronotum, fuscous, more or less marked with obscure testaceous; posterior femora more or less piceous at the apex; scutellum piceous.

Head: vertex impunctate, frontal elevations broad and triangular, separated from the vertex by a deep transverse impression, clypeus with a strongly raised central ridge, eyes large and round. Antennæ scarcely extending to the middle of the elytra; all the segments comparatively robust; first long and club-shaped, second short, third not much longer than second, fourth longer than third; the following segments almost equal. *Prothorax* twice as broad as long, sides feebly rounded with a distinct reflexed margin which widens in front, angles not prominent; surface, seen under a high power and in a suitable light, very finely punctate. *Scutellum* broad, triangular, with surface impunctate. *Elytra* hardly broader at base than prothorax, very minutely punctate, the punctuation being similar to that of the pronotum and consisting of a mixture of larger and smaller punctures, lateral edges reflexed, epipleura broad and concave.

Length, 3½ mm.

BURMA: Tharrawaddy.

Type in the British Museum. It has only "Burma" as the locality.

This small species is of rather peculiar and uncertain

coloration, and is very closely allied to *H. discoidalis*, Jac. The differences between the two are, however, constant, and are as follows: in *H. discoidalis* the antennæ are longer, and their colour is yellowish (except that of the apical segments), the scutellum is yellowish and the elytra, although finely, are more distinctly and remotely, punctate, while lastly, the posterior femora have no black colour at the apex.

111. Hyphasoma limbatipennis, *Jacoby*.

Hyphasis limbatipennis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 197.

Small, ovate. General colour fulvous; the eight distal segments of the antennæ black; the elytra piceous with margins narrowly fulvous.

Head with vertex impunctate, frontal elevations transversely subquadrate, strongly raised, clypeus with a very acutely raised straight ridge. Antennæ two-thirds the length of the body, slender, covered with fine hairs; basal segment elongate and club-shaped, second very short, third longer than second and somewhat shorter than first; the remaining segments are almost equal. *Prothorax* much broader than long, sides rounded, slightly explanate in front, anterior angles slightly thickened but scarcely produced; surface impressed with a few very fine punctures only visible under a high power and in a suitable light. *Scutellum* triangular, impunctate. *Elytra* slightly broader at base than prothorax, closely, confusedly and finely punctate; lateral margins slightly explanate with edges reflexed. *Underside*: first segment of posterior tarsi as long as the two following segments together.

Length, 4 mm.

Burma: Bhamo, viii. 1885 (*Fea*).

Type in the Genoa Museum.

Two examples bearing Fea's locality labels are in the British Museum, and one of these has an identification label in Jacoby's handwriting.

112. Hyphasoma discipennis, *Jacoby*.

Hyphasoma discipennis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 112.

Broadly ovate. Colour generally fulvous; elytra blackish with reflexed margins brown (type); sometimes the elytra are only slightly blackish, and in some examples they are entirely brown; antennæ nearly black, with the three basal segments fulvous; underside and legs testaceous.

Head impunctate, frontal elevations transverse, lower portion of face concave, shining. Antennæ slender, about half the length of the body; first segment elongate and club-shaped, third longer than second, fourth slightly longer than third; from the fifth

onwards the segments are almost equal, except the ninth and tenth, which are somewhat shorter. *Prothorax* twice broader than long, anterior angles obliquely thickened, posterior angles rather obtuse, rounded; surface nearly impunctate, or with some very minute punctures visible under a strong power and in a suitable light. *Scutellum* broad, impunctate. *Elytra* very finely and rather closely punctate. *Underside*: first segment of the hind tarsi as long as the two following segments together; claw-segment moderately swollen.

Length, 5–5½ mm.

NILGIRI HILLS.

Type in the British Museum.

Of much smaller size than *H. indica*, Baly, and more finely punctate; separated from *H. nigricornis*, Baly, by the much shorter antennæ, the less transverse thorax and different sculpture of the latter and of the elytra; while the differently coloured legs and other details distinguish this species from *H. piceipennis*, Baly.

113. **Hyphasoma discoidalis**, *Jacoby*.

Hyphasis discoidalis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 262.

Oblong-ovate. General colour brown with the elytra obscure piceous, the latter colour being lighter in the middle; terminal four or five segments of antennæ fuscous; scutellum fulvous.

Head with vertex impuncate, frontal elevations transverse, rather flat and separated from the vertex by a deeply impressed line, interantennal carina cut short but distinct, clypeus deflexed. Antennæ extending to a little distance beyond the middle of the elytra; first segment long, club-shaped, second shorter than either first or third, fourth almost equal to third; the following segments almost equal. *Prothorax* transverse, about one-half a millimetre broader than long; sides slightly rounded, margins reflexed, posterior margin almost straight, and not as Jacoby states "somewhat broadly produced at the middle," anterior angles rounded; on the upper surface under a high power and in a suitable light very fine and scattered punctures are visible. *Scutellum* triangular, impunctate. *Elytra* very closely, finely but distinctly punctate. *Underside*: epipleura deeply concave; prosternum narrowly elongate.

Length, 4 mm.

BOMBAY: Belgaum (type-locality). NILGIRI HILLS.

Type in the British Museum.

114. **Hyphasoma parvula**, *Jacoby*.

Hyphasis parvula, Jac., Notes Leyd. Mus. vi, 1884, p. 29.
Hyphasis feæ, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 196.

Body ovate. Colour pale flavous; the eight distal segments of the antennæ black.

Head with vertex impunctate, frontal elevations broad, nearly contiguous, carina strongly raised, convex. Antennæ extending to about the middle of the elytra, covered with fine hairs; first segment elongate, club-shaped, second small, shorter than either first or third, the latter shorter than the former, fourth slightly longer than third; from the fifth to the end the segments are almost equal. *Prothorax* much broader than long, sides rounded, lateral margins somewhat explanate and reflexed, anterior angles obliquely thickened; upper surface almost impunctate, but under a high power and in a suitable light some very fine punctures are visible. *Elytra* somewhat broader at the base than the prothorax finely and confusedly punctate.

Length, 4 mm.

Burma: Bhamo, ix. 1885 (*Fea*); Karen Mts. v. 1888 (*Fea*). Assam: Manipur. Malay Archipelago: Sipora, Mentawei Islands, v–vi. 1894 (*Modigliani*).

I am uncertain of the whereabouts of the type of *H. parvula*: that of *H. feæ* is in the Genoa Museum. There is a co-type of *H. feæ* and another specimen bearing Fea's locality label in the British Museum. An example from the Mentawei Islands (*Modigliani*) is also in the British Museum. I have compared a co-type of *H. parvula* with a co-type of *H. feæ* and am of opinion that they are the same species, and that it has a very wide distribution in Assam, Burma and the Malay Archipelago.

115. Hyphasoma nigricornis, *Baly*.

Hyphasis nigricornis, Baly, Ann. Mag. Nat. Hist. (5) i, 1878, p. 314; Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 196.

Broadly rounded-ovate. Colour yellow-brown; antennæ (the three basal segments excepted), scutellum and breast, piceous.

Head with vertex impunctate, frontal elevations transverse, quadrate, contiguous, separated from the vertex by a deep transverse impression, and carina strongly raised. Antennæ more than three-fourths the length of the body, slender; first segment elongate, club-shaped, second small, shorter than either first or third, the latter shorter than the fourth; the following segments are almost equal, except the eighth, ninth and tenth, which are somewhat shorter. *Prothorax* about three times as broad as long, sides broadly margined, edges reflexed, nearly straight and parallel behind the middle, rounded and converging in front, front angles ending in an obtuse, outwardly curved point, hind angles distinct, subacute; upper surface impressed with minute punctures, the interspaces still more minutely punctate. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* broader at base than prothorax and broadening much more behind, distinctly and rather closely punctate, with lateral margins broadly dilated and only slightly reflexed. *Underside*: prosternum narrowly oblong, slightly sinuate at the sides, with apex obtuse and surface only slightly excavated; posterior tibiæ unarmed at

the apex; first segment of posterior tarsi longer than the two following segments together.

Length, $5\frac{1}{2}$ mm.

NORTHERN INDIA (type-locality). UNITED PROVINCES: Almora, Kumaon, July (*H. G. Champion*).

Type in the British Museum.

116. **Hyphasoma inornata**, *Jacoby*.

Hyphasis inornata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 937.

Elongate. Colour testaceous; antennæ (the three basal segments excepted) fuscous.

Head impunctate, frontal elevations broad, subquadrate, carina acutely raised, lower portion of the face deflexed, eyes large. Antennæ extending to half the length of the elytra, the third and the following segments nearly equal in length. *Prothorax* more than twice as broad as long; the sides are but slightly rounded and narrowed in front, with an explanate and reflexed lateral margin; anterior angles very slightly produced outwards; upper surface extremely minutely punctate when seen under a strong lens, the punctuation a little more distinct at the sides. *Scutellum* broad, impunctate. *Elytra* scarcely more strongly punctate than the prothorax, the punctures closely placed. *Underside* clothed with fine pubescence, claw-segment strongly dilated.

Length, 6 mm.

BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum; there are two examples in the British Museum.

This species is closely allied to *H. unicolor*, Jac., but is more elongate in shape and has the antennæ differently coloured.

117. **Hyphasoma unicolor**, *Jacoby*.

Hyphasis unicolor, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 197.

Broadly ovate, shining. Colour entirely uniform pale yellow-brown.

Head with vertex impunctate, frontal tubercles transversely subquadrate, carina short, acutely raised. Antennæ somewhat shorter than the body (in the single example before me they are one millimetre shorter); first segment long and club-shaped, second much shorter than either first or third; the following segments are almost equal. *Prothorax* much broader than long, sides rounded, with somewhat explanate and concave lateral margins, anterior lateral angles rather broadly produced outwards; upper surface minutely and finely punctate, the punctures being visible under a high power and in a suitable light. *Scutellum* broad, triangular, impunctate. *Elytra* broader at the base than the prothorax, with lateral margins slightly explanate, and surface

minutely, confusedly and more or less closely punctate. *Underside*: first segment of posterior tarsi slightly longer than the two following segments together.

Length, $5\frac{1}{2}$ mm.

TENASSERIM: Thagata, iv. 1887 (*Fea*).

Type in the Genoa Museum.

There is one example in the British Museum. Jacoby was of opinion that the females of this species are double the size of the males, but I have not enough material to test this view.

118. **Hyphasoma intermedia**, *Jacoby*.

Hyphasis intermedia, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 937.

Ovate. Colour fulvous or obscure piceous; antennæ sometimes fuscous.

Head impunctate, clypeus with an acutely raised central ridge. Antennæ two-thirds the length of the body; all the segments, with the exception of the second, are of nearly equal length. *Prothorax* nearly three times as broad as long, sides with a rather broad explanate margin, scarcely rounded, anterior angles obliquely produced; surface very finely and remotely punctate, distinctly depressed in front of the scutellum. *Scutellum* broad and impunctate. *Elytra* oblong-ovate, more strongly but not more closely punctate than the prothorax. *Underside*: first segment of posterior tarsi elongate.

Length, 5 mm.

BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum. I have not seen this species, which was described from two examples only. *H. intermedia* is closely allied to *H. unicolor*, Jac., and *H. inornata*, Jac., but differs in having the prothorax and elytra more distinctly, although finely, and remotely punctate; in the two allied species these parts are either closely or extremely finely punctate, while in *H. inornata* the sides of the prothorax are also strongly rounded.

119. **Hyphasoma inconspicua**, *Jacoby*.

Hyphasoma inconspicua, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p 111.

Oblong-ovate, shining. Colour entirely obscure testaceous.

Head impunctate, with a strong transverse groove between the eyes, frontal tubercles and interantennal carina well developed, but more or less broad, clypeus concave at its lower portion. Antennæ extending to about the middle of the elytra; first segment elongate and club-shaped, second shorter than either first or third; the following segments of almost equal length. *Prothorax* somewhat less than one millimetre broader than long, with sides rounded and rather broadly margined, their edges

slightly reflexed, anterior angles slightly truncate obliquely, not produced; surface almost impunctate, but under a high power and in a suitable light some very fine scattered punctures are visible. *Scutellum* impunctate. *Elytra* with punctures only visible when seen under a very strong lens, oblong and parallel-sided, their epipleura broad and concave. *Underside*: posterior tibiæ with a strong spur; first segment of posterior tarsi as long as the two following segments together.

Length, 4 mm.

NILGIRI HILLS (type-locality).

Type in the British Museum.

SECTION III: SUBSECTION III.

Pronotum and elytra not pubescent (except in *Ophrida hirsuta*, p. 230); claw-segment of hind tarsi not greatly dilated; front coxal cavities closed or almost closed behind.

Key to the Genera.

1. Elytral punctures completely confused	2.
Elytral punctures either quite regularly arranged in longitudinal rows, or at least there is sufficient indication of the punctures tending to form longitudinal rows	10.
2. Form more or less rounded, strongly convex	3.
Form oblong, not strongly convex ..	5.
3. Antennæ moderately long, extending to about the middle of the elytra..	EUPHITREA, Baly, p. 177.
Antennæ extending to the base of the pronotum or a little distance beyond	4.
4. Apical segments of antennæ distinctly flattened	ACROCRYPTA, Baly, p. 180.
Apical segments not flattened, antennæ hardly reaching the humerus	GLAUCOSPHÆRA, gen. n., [p. 183.
5. Second and third segments of antennæ very small, globular, and equal	6.
Second and third segments not very small and globular, and not equal .	7.
6. Antennal segments beyond the third triangularly expanded; surface not metallic	CEROTRUS, Jac., p. 185.
Antennal segments beyond the third not triangularly expanded; surface metallic	CHALÆNOSOMA, Jac., [p. 187.
7. Humerus strongly pronounced	8.
Humerus not strongly pronounced ..	9.
8. Prothorax broader than long, with a transverse depression on the surface; surface not metallic	CLEONICA, Jac., p. 192.
Prothorax quadrate; surface metallic.	MESOPA, Jac., p. 194.

9. Antennæ sparsely covered with fine hairs .... BIMALA, gen. n., p. 195.
Antennæ not hairy .... MICRAPHTHONA, Jac., [p. 197.

10. Prothorax deeply constricted behind.. EUDOLIA, Jac., p. 198.
Prothorax not constricted behind .... 11.

11. In the middle and hind legs the tibia has an excavation on its outer edge, extending from the apex upwards for a certain distance, and set with bristles; body small ($1\frac{1}{2}$–3 mm.), ovate, narrowed in front and behind; elytra punctate-striate............ CHÆTOCNEMA, Stephens, [p. 202.
No such combination of characters .. 12.

12. Body massive, large (8–17 mm. long, the largest among these genera), broad, oblong; colour of upper side either uniform red-brown, or with black or darker or lighter brown spots and patches arranged transversely on a brown background, or much chequered, irrorated, or speckled with black or brown spots: without any transverse impression at the basal margin of the pronotum .... 13.
No such combination of characters .. 14.

13. Prosternum highly elevated; the anterior projection of the mesosternum fits into an emargination, depression or cavity of the prosternum .... PODONTIA, Dalman, p. 220.
Prosternum squarely truncate behind, with the end at the same level as the mesosternum, which meets the truncate end of the prosternum.... OPHRIDA, Chap., p. 228.

14. Pronotum uniformly convex, without any depressions at all .... 20.
Pronotum with a depressed area, generally in front of the basal margin.. 15.

15. Small, ovate insects, those from our regions $2\frac{1}{2}$ mm. or less in length .. CREPIDODERA, Chevr., [p. 234.
Larger insects, always much longer than $2\frac{1}{2}$ mm. .... 16.

16. The ante-basal transverse impression extends almost to the sides of the pronotum and is not definitely terminated by a longitudinal impression on either side; it is interrupted in the middle and thus divided into two depressions, one on each side of the middle line.... 17.
The ante-basal transverse impression does not extend to the sides and is terminated on each side by a short longitudinal line .... 18.

17. Anterior and posterior angles of prothorax produced .... ASUTOSHA, gen. n., p. 238.
Anterior and posterior angles of prothorax not produced .... GOPALA, gen. n., p. 240.
18. Elytral punctures partially regularly arranged in rows; ante-basal impression on the pronotum shallow .... GRIVA, gen. n., p. 241.
Elytral punctures extremely regularly arranged in longitudinal rows; ante-basal impression deep ...... 19.
19. Elytral rows of punctures arranged in pairs .... PSEUDODERA, Baly, p. 243.
Elytral rows not in pairs, all nearly equidistant from each other ...... XUTHEA, Baly, p. 246.
20. Besides bearing the ordinary punctures, the whole of the upper surface is granulate .... 21.
Upper surface not granulate .... 22.
21. Body ovate, strongly convex .... AMPHIMELA, Chap., p. 250.
Body oblong, not strongly convex.... CLITEA, Baly, p. 252.
22. Body spheroidal, strongly convex .... 23.
Body not spheroidal, ovate (narrowed in front, broadened behind), not strongly convex .... 25.
23. Body extremely small ($1\frac{1}{4}$–$1\frac{1}{2}$ mm. long); apical segments of the antennæ forming a thickened club . KAMALA, gen. n., p. 255.
Body always much longer than $1\frac{1}{2}$ mm.; apical segments of the antennæ not forming a club . .... 24.
24. Head with a raised longitudinal area on the vertex; antennæ thicker .. NEORTHAEA, nom. nov. [ORTHAEA, Jac.], p. 259.
Head without any elevations at all, absolutely level; antennæ slender . SPHÆROPLEURA, Jac., [p. 265.
25. Pronotum impunctate .... 26.
Pronotum distinctly punctate ...... 27.
26. Post-basal part of the elytron depressed. ELYTROPACHYS, Motsch. [PEXODORUS, Jac.], p. 267.
No such depression on the post-basal part of the elytron .... PANILURUS, Jac., p. 269.
27. Lateral margins of elytra expanded or broadened .... ERYSTUS, Jac., p. 271.
Lateral margins of elytra not expanded at all.......................... 28.
28. Small ovate insects, with a short longitudinal impression on each side of the pronotum perpendicular to the basal line; opposite to these impressions there are in some cases similar longitudinal impressions perpendicular to the front margin.. PODAGRICA, Foudras, [p. 273.
No such combination of characters .. 29.
29. Body large ($5\frac{1}{2}$ mm. long), convex; first segment of posterior tarsi equal to the two following segments together .... PHÆLOTA, Jac., p. 280.

Body small (3 mm. long); first segment of posterior tarsi equal to the three following segments together .... APHTHONELLA, Jac., [p. 281.

Genus EUPHITREA, *Baly*.

Euphitrea, Baly, Trans. Ent. Soc. London, 1875, p. 27.
Euphymasia, Jacoby, Stettin. Ent. Zeit. lx, 1899, p. 310.

GENOTYPE, *Euphitrea wallacei*, Baly (Sumatra, Java).

Body rounded, convex. *Head* short, broad, frontal tubercles not prominent, somewhat oblique, interantennal carina obsolete. Antennæ moderately long, hardly extending to the middle of the elytra; the three basal segments generally without hairs, the rest pubescent and generally slightly thickened. *Prothorax* broader than long, somewhat convex. *Scutellum* small, triangular, with apex pointed. *Elytra* broader at base than prothorax, confusedly and closely punctate; their epipleura broad, continued to the apex, where they are somewhat narrowed. *Underside*: anterior coxæ raised, the cavities being closed behind; prosternum channelled along the middle; mesosternum short, erect, hidden by the apex of the metasternum; metasternum extending between the mesocoxæ to the prosternum; legs moderately robust; posterior femora moderately thickened; tibiæ broadened towards the apex, flattened and somewhat sulcate on the outer surface, the posterior pair armed with a small spine at the apex; claws appendiculate.

Range. India, Sumatra, Java.

The type of Jacoby's genus *Euphymasia* is *E. dohrni*, from Sumatra, the type of which is in the British Museum; after comparing it with Baly's type of *Euphitrea wallacei*, also in the British Museum, I have no doubt that the two are the same species. This was already recognized by Dr. Gahan when he arranged the HALTICINÆ and GALERUCINÆ in the collection of the British Museum—an observation which was incorporated by Bryant in his paper "Notes on Synonymy in the Phytophaga," Ann. Mag. Nat. Hist. (9) xii, 1923, p. 143.

Key to the Species.

Elytra brown, without a metallic bronzy sheen .... *E. indica*, Jac., p. 178.
Elytra brown, with a metallic bronzy sheen .... *E. foveicollis*, Jac., p. 179.

Euphitrea (?) *birmanica*, Harold (p. 179), is not included in the key, owing to the uncertainty as to its identity and generic position.

120. Euphitrea indica, *Jacoby.*

Euphitrea indica, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 391.

Body broadly rounded. Colour pale fulvous.

Head broad and flat, impunctate; frontal elevations and carina absent. Antennæ widely separated, not extending to the middle of the elytra; the three basal segments shining, the rest opaque and pubescent; first segment the longest, club-shaped, second short, the third and following segments nearly equal. *Prothorax* about three times as broad as long, sides nearly straight, basal margin broadly but slightly produced at the middle; the surface

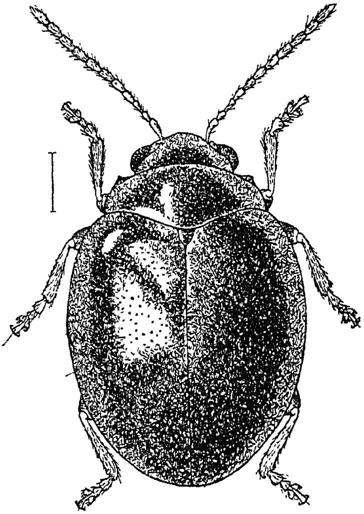

Fig. 67.—*Euphitrea indica,* Jac.

under a low power appears impunctate, but is really finely punctate, the punctures being much finer than those of the elytra. *Scutellum* triangular, impunctate. *Elytra* finely, very closely and irregularly punctate, their epipleura comparatively broad. *Underside*: prosternum narrow, longitudinally sulcate; metasternum produced into a transverse ridge.

Length, $7\frac{1}{2}$ mm.

NILGIRI HILLS. ANAIMALAI HILLS: v, vi, vii (Andrewes Coll., British Museum).

Type in the British Museum.

Closely allied to *E. wallacei,* Baly, but smaller, without æneous gloss; the antennæ are less robust and the prothorax is distinctly shorter.

121. **Euphitrea foveicollis,** *Jacoby.*

Euphitrea foveicollis, Jac., Trans. Ent. Soc. Lond. 1893, p. 149.

Body broadly ovate, rounded. Colour fulvous, with a bronzy or violaceous sheen on the upper surface.

Head rugosely punctate (the rugosity is pronounced in the type-specimen, but it is less marked in some other examples, which have very fine punctures), deeply and obliquely channelled above the eyes; clypeus thickened and widened between the antennæ, impunctate; palpi slender. Antennæ not extending to the middle of the elytra; first segment long and club-shaped, second shorter, but equal to the third; from the fourth the segments are somewhat thickened and pubescent and more or less nearly equal. *Prothorax* twice as broad as long ($3 \times 1\frac{1}{2}$ mm.), anterior margin straight, anterior angles produced outwards, sides rounded, posterior margin sinuate at the sides; disc very finely and closely punctate, with a large fovea near the anterior angles; the surrounding edges of this fovea are thickened, and the space behind is very finely strigose; the foveæ and the strigose nature of the pronotal punctures are pronounced in the type-specimen, but in other examples the foveæ are feeble, and in some obsolete. *Scutellum* triangular, with apex pointed and surface impunctate. *Elytra* broader at base than prothorax, rounded and moderately convex, strongly, closely and confusedly punctate; the interstices in some examples seem rather wrinkled, and there is an impunctate space along the lateral margin, thickened in front and accompanied by a row of deep punctures; epipleura very broad, narrowing towards the apex and transversely wrinkled. *Underside*: abdomen closely punctate; tibiæ deeply sulcate; anterior coxal cavities closed behind.

Length, $7\frac{3}{4}$ mm.

Assam: Naga Hills, Dunsiri Valley (type-locality, also specimens in the Indian Museum). Sikkim: Mungphu (Indian Museum); Gopaldhara, Rungbong Valley (*H. Stevens*).

Type in the British Museum.

The following insect is unknown to me, and from the short diagnosis in Latin, of which a translation is here given, it is not possible to place the species with certainty in any genus. Probably it belongs to the genus *Orthaea*, Jac.

Euphitrea birmanica, *Harold*, Col. Hefte, 1879, xvi, p. 231.

Sub-rotund, ferruginous, with elytra blue, fairly regularly seriate-punctate, the punctures towards the apex smaller and less regularly arranged; lateral border of elytra from the base to beyond the middle smooth and somewhat thickened; thorax densely punctulate, the base having on each side a short impressed line, lateral margin smooth and separated from the dis

by a median indefinite impression; epipleura broad, purplish, transversely wrinkled; antennæ reddish-testaceous. L. 6 mm.

BURMA. Close to *Eu. micans*, Baly, but easily to be recognised by the blue and more finely-punctured elytra.

Genus ACROCRYPTA, *Baly*.

Acrocrypta, Baly, Journ. of Ent. i, 1862, p. 457.

GENOTYPE, *Acrocrypta mouhoti*, Baly (Cambodia).

Body ovate, strongly convex, narrowed in front. *Head* broad; eyes strongly convex, entire and ovate. Antennæ short, much thickened from the fourth segment onwards and laterally flattened. Maxillary palpi with the penultimate segment strongly dilated, subglobose, truncate at the apex. *Prothorax* much broader than long; basal margin widely arched, the hind angles being drawn forwards; sides short and slightly rounded; at the front angles the surface is convex and rounded, and each of the four angles bears a fine erect seta. *Scutellum* triangular. *Elytra* closely, confusedly and finely punctate; humerus raised, convex. *Underside*: anterior coxal cavities closed behind; tibiæ finely channelled on the dorsal side; posterior femora strongly thickened and channelled on the underside; claws widely separated, with a basal thickening under each.

Range. Indo-China, Borneo, Sumatra, Philippines, Assam, Burma.

Key to the Species.

1. Pronotum black	*A. intermedia*, Jac., p. 180.
Pronotum not black	2.
2. Longer insects (7 mm.); elytral punctures fine	*A. momeita*, sp. n., p. 181.
Smaller insects (6–6½ mm.); elytral punctures larger	*A. assamensis*, Jac., p. 182.

122. Acrocrypta intermedia, *Jacoby*.

Sphærometopa intermedia, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 925.

Body fulvous; scutellum dark fulvous; head, antennæ, prothorax and legs, black or piceous.

Head with some few fine punctures, frontal elevations rather obsolete; penultimate segment of maxillary palpi strongly dilated. Antennæ short, extending a little distance beyond the humerus, with the fourth and following segments thickened and densely covered with stiff hairs; from the fifth or sixth onwards the segments are distinctly and progressively flattened, the terminal segment being pointed. *Prothorax* short, much broader than long, longest in the middle; sides nearly straight, anterior angles obliquely thickened, surface very finely and more or less sparsely

punctate, the punctuation being less distinct than that of the elytra. *Scutellum* triangular, with apex pointed and surface impunctate. *Elytra* very convex, slightly widened behind the middle, more distinctly punctate than the prothorax, the punctures very closely and evenly placed throughout. *Underside* very thinly covered with fine hairs; epipleura broad at base and much narrowed towards apex; other structures as under the description of the genus.

Length, 5–6$\frac{1}{4}$ mm.

BURMA: Palon, viii–ix (*Fea*).

Type probably in the Genoa Museum. There are two examples in the British Museum from the same locality, with Fea's labels, one being also marked "type." On the labels bearing the name of the insect Jacoby indicates the genus as *Sphærederma*, but his published description is under the genus *Sphærometopa*. This species, however, cannot be placed in either of these genera, because it has its anterior coxal cavities closed behind, while in the genera *Sphæroderma* and *Sphærometopa* they are open.

123. **Acrocrypta momeita***, sp. nov.

Body broadly ovate and convex. Colour dark reddish-brown, with the antennæ and legs black, and the head and pronotum bearing obsolescent black patches in the middle.

Head finely punctate, frontal elevations flat. Antennæ short, passing a little distance beyond the base of the pronotum, much thickened and slightly flattened gradually from the fourth segment onwards; first segment elongate, club-shaped, second small, shorter than third; the six apical segments covered with bristles, the last small and pointed. *Prothorax* much broader than long, front margin straight, front angles thickened, sides short and rounded, hind angles drawn forward, as is typical in this genus, and slightly thickened, basal margin gently sinuate on either side, the thickened angles having pores bearing setæ; surface convex from side to side, very finely punctate throughout. *Scutellum* large, triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at base than prothorax; humerus convex, rounded; surface confusedly and finely punctate throughout; in this species the elytral punctures are finer than in *A. assamensis*, Jac.; along the marginal area on each elytron the punctures are arranged in three rows: one lies along the extreme margin, while within this is an interspace, broader near the base and narrower towards the apex; internal to the interspace are two parallel rows, placed closed to each other; this interspace and another, arising rather indistinctly behind the humerus,

* Although the modern spelling of the place in Burma from which this species takes its name is Momeik, the name *momeita* has been formed from the old spelling Momeit, by which the locality was known in the days of the collector Doherty.

when viewed at certain angles, are seen to be feebly raised. *Underside* punctate and sparsely covered with fine hairs: tibiæ, posterior femora and claws as described under the genus.

Length, 7 mm.

BURMA: Momeik [Momeit] (*Doherty*).

Type in the British Museum. Described from one example.

This species is closely allied to *A. assamensis*, Jac., but differs from that species in its larger build and finer elytral punctures.

124. **Acrocrypta assamensis**, *Jacoby*.

Acrocrypta assamensis, Jac., Trans. Ent. Soc. Lond. 1873, p. 151.

Body broadly ovate and convex. Colour dark reddish-brown, the antennæ (from the third segment onwards) and legs black, while the two basal segments of the antennæ may be tinged with dark brown.

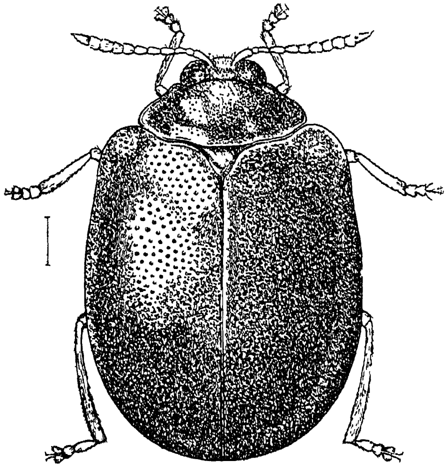

Fig. 68.—*Acrocrypta assamensis*, Jac.

Head very finely punctate between the eyes, frontal elevations flat, palpi strongly incrassate. Antennæ short, passing a little distance beyond the base of the pronotum, from the fourth segment gradually thickened and pubescent; first segment long and thickened at the apex, second small, slightly shorter than third, the last segment small and pointed. *Prothorax* more than twice as broad as long, front margin straight, sides short and rounded, posterior margin sinuate towards each side, the median lobe roundly produced; anterior angles obliquely thickened, each posterior angle with a small swelling, all the four angles each bearing a seta; surface convex, very minutely punctate throughout.

Elytra convex, punctured as closely as the prothorax but much more strongly, the interstices also here and there impressed with minute punctures; along the margin there are three rows on each elytron, one along the extreme margin, while internal to it is an interspace, broader at the base and narrower at the apex, and internal to this interspace are two parallel rows, placed close to each other; this interspace and another arising behind the humerus, viewed at certain angles, are seen to be feebly raised. *Underside* closely and finely punctate, sparsely covered with fine hairs; each posterior tibia with a strong spur at its apex; first segment of posterior tarsi as long as the three following segments together; claws thickened at the base.

Length, 6–6½ mm.

ASSAM: Patkai Mts. (*Doherty*).

Type in the British Museum.

GLAUCOSPHÆRA, gen. nov.

GENOTYPE, *Amphimela cyanea*, Duvivier.

This genus is proposed to include *Amphimela cyanea*, Duvivier, which was first described from Kurseong, Darjeeling, and of which I have before me many examples from Himalayan districts. It agrees with the genus *Amphimela* in having the points of insertion of the antennæ wide apart, but differs from it in the shape and sculpture of the body.

Body narrowed in front, gradually broadened and attaining its widest point about the middle, and then again narrowed behind, but not so much as in front. Upper surface spheroidal and confusedly punctate. Antennæ short, passing only a little distance beyond the base of the pronotum, slightly thickened towards the apex. Interantennal space smooth and without elevations. Pronotum broader than long, the sides margined and very slightly concave, each of the anterior and posterior angles bearing a fine seta. *Underside*: anterior coxal cavities closed behind; prosternum narrow; hind femora considerably thickened, tibiæ not channelled and not furnished with a spine at the apex; claws appendiculate.

Range. The Himalayas.

125. Glaucosphæra cyanea, *Duvivier*.

Amphimela cyanea, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 420.

Body subrotund. Dorsal surface very shining dark blue with violet reflections, ventral surface black mixed with purple; scutellum black; the edge of the labrum and the last segment of the maxillary palpi pitch-brown: the four basal segments of the antennæ yellow-brown.

Head broad; interocular and interantennal spaces, though without carinæ, not quite flat, but slightly depressed in the middle; eyes more convex than in *Amphimela*, with a few strong punctures between them. Antennæ short, passing a little distance beyond the base of the pronotum, the seven apical segments thickened, hairy and almost equal, except the last, which is pointed at the apex; first segment long and club-shaped, second thicker than third, which is almost equal to the fourth. *Prothorax* broader than long (length $1\frac{3}{4}$ or 2 mm., breadth 1 mm.); posterior margin a wide arch, anterior almost straight, sides convexly rounded, very slightly margined, anterior angles almost right angles, posterior obtuse; surface gradually and uniformly convex from side to side, and very finely and obsoletely punctate.

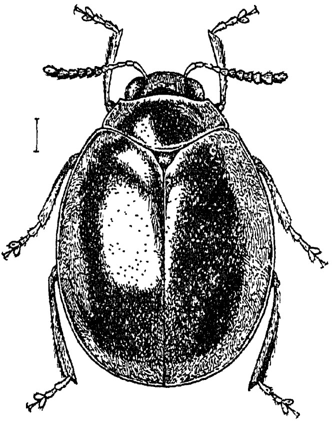

Fig. 69.—*Glaucosphæra cyanea*, Duvivier.

Scutellum triangular, broader than long. *Elytra* hardly broader at the base than the prothorax, gradually broadening behind, strongly rounded at the sides; surface moderately convex, irregularly and very finely punctate, the punctures being very shallow. *Underside* punctate and sparsely covered with hair; epipleura of elytra slightly concave, very broad at the base, gradually narrowing towards the apex; other structures as stated under the description of the genus.

Length, 4 mm.

EASTERN HIMALAYAS: Kurseong (*P. Braet*). UNITED PROVINCES: West Almora and West Bhatkee, Kumaon, v. 1920, fourteen examples (*H. G. Champion*).

Type in the Brussels Museum.

Genus CEROTRUS, *Jacoby.*

Cerotrus, Jacoby, Notes Leyd. Mus. vi, Jan. 1884, p. 33.
Anicera, Jacoby, Notes Leyd. Mus. vi, Oct. 1884, p. 207.

GENOTYPE, *Cerotrus melanocephalus*, Jac. (Sumatra).

Body oblong and parallel-sided. Colour not metallic. *Head* exserted, with the eyes large and entire, and the maxillary palpi filiform, their last segment being conical; antennæ filiform, as long as the body, second and third segments very short, almost globular in shape and equal, the remaining segments triangularly

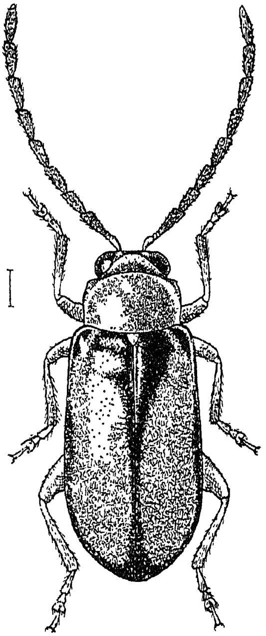

Fig. 70.—*Cerotrus nigromarginatus*, Jac.

expanded. *Prothorax* transverse, narrow, with sides straight, and anterior and posterior margins parallel. *Scutellum* triangular. *Elytra* parallel, closely and irregularly punctate, their epipleura continued beyond the middle. *Underside*: tibiæ unarmed; first segment of hind tarsi equal to the three following segments together; claws appendiculate; prosternum narrow but distinct, anterior coxal cavities closed behind; posterior femora only moderately incrassate.

Range. India, Sumatra.

Key to the Species.

Underside entirely light brown............ *C. nigromarginatus*, Jac.
Underside partly piceous, not entirely brown. *C. apicalis*, Jac.

126. **Cerotrus nigromarginatus**, *Jacoby.*

Cerotrus nigromarginatus, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 940.

Colour testaceous; antennæ (except the base of the first segment, which is brown) and tarsi black; elytra testaceous or somewhat lighter, with lateral, sutural and apical margins black; this black margin is slightly widened towards the base at the suture, while in one variety the elytra may be entirely black; scutellum light brown.

Head impunctate, frontal elevations narrow but distinctly raised. Antennæ long, extending nearly to the end of the elytra, second and third segments extremely small and equal, the following segments rather flattened and widened. *Prothorax* more than twice as broad as long, angles tuberculiform, sides slightly rounded before the middle, surface rather convex with a few minute punctures. *Scutellum* triangular. *Elytra* very strongly but not very closely punctate. *Underside*: posterior femora slightly thickened; tibiæ unarmed; claws appendiculate; anterior coxal cavities closed.

Length, 5 mm.

BURMA: Karen Hills, Cheba (*Fea*).

Type in the Genoa Museum.

127. **Cerotrus apicalis**, *Jacoby.*

Cerotrus (Anicera) apicalis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 236.

Body oblong-ovate. Colour pale testaceous; lower portion of head whitish; vertex and base of the head, breast and scutellum piceous; elytra with sutural and lateral margins narrowly, and apex broadly, black; in one variety the elytra have a subapical, transverse, angulate, black band; antennæ yellowish-white, with the six or seven terminal segments fuscous at their apices; surface of pronotum nearly white; apices of hind tibiæ fuscous.

Head with a very few fine punctures; frontal elevations rather broad and flat, divided by the broad apex of the clypeus. Antennæ two-thirds the length of the body; third segment one-half longer than the second, fourth as long as the two preceding segments together. *Prothorax* nearly three times broader than long, sides rounded at the middle, anterior angles directed outwards, posterior margin rounded; surface shining, distantly impressed with rather large punctures. *Elytra* a little more

closely but scarcely more strongly punctate. *Underside*: first segment of the posterior tarsi as long as the three following segments together; claws appendiculate; anterior coxal cavities closed behind.

Length, 3¾–5 mm.

BURMA: Bhamo, vii. 1886 (*Fea*).

Type in the Genoa Museum.

It must be pointed out that the difference in the lengths of the second and third segments of the antennæ, which ought to be equal in the genus *Cerotrus*, makes the generic position of this species somewhat doubtful; but without more material it is not possible to change its position at present.

Genus CHALÆNOSOMA, *Jacoby*.

Chalænosoma, Jac., Trans. Ent. Soc. Lond. 1893, p. 157.

GENOTYPE, *Chalænosoma metallicum*, Jacoby.

Body oblong-ovate, often convex behind. Colour generally metallic green, often with a cupreous sheen. *Head*: vertex convex, frontal tubercles well developed, separated from the vertex by a deep transverse impression; eyes strongly convex. Antennæ long, generally of uniform thickness throughout; second and third segments very short, generally equal, fourth segment the longest; the following segments almost equal. *Prothorax* broader than long, rather convex, posterior margin rounded, surface without basal depressions, the four corners often angulate, each bearing a fine seta. *Elytra* with a strong post-basal transverse depression, consequently the basal area is convex; broader at the base than the prothorax; confusedly and closely punctate; epipleura broad, extending to the apex. *Underside*: legs long and slender, posterior femora but moderately thickened, all the tibiæ unarmed, first segment of the posterior tarsi longer than the two following segments together, claws appendiculate; prosternum very narrow, the anterior coxal cavities closed behind.

In some species of this genus the males show secondary sexual characters, having the first segment of the front and middle tarsi enlarged and the antennæ, except the three basal segments, somewhat thickened.

Range. South India.

This genus may be regarded as transitional between HALTICINÆ and GALERUCINÆ.

Key to the Species.

1. Pronotum with a broad median or antemedian transverse depression, which may be more or less pronounced	2.
Pronotum without any depression	4.

Pronotal depression less pronounced in the middle, more so at the sides, rather shallow; elytra with transverse purple bands or patches	*C. fulvitarsis*, Jac., p. 188.
3. Antennæ about one millimetre shorter than the length of the insect; granulation of the surface of the elytra not distinctly visible	*C. antennata*, Jac., p. 189.
Antennæ shorter; granulation of the surface of the elytra distinctly visible..	*C. viridis*, Jac., p. 190.
4. Pronotum closely and strongly punctate, and besides having punctures the surface is granulate	*C. cuprea*, Jac., p. 190.
Pronotum scarcely perceptibly punctate, its surface not granulate	*C. metallicum*, Jac., p. 191.

128. **Chalænosoma fulvitarsis**, *Jacoby.*

Chalænosoma fulvitarsis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 115.

Body ovate, somewhat widened behind. Colour metallic cupreous above and bluish, stained with cupreous, beneath;

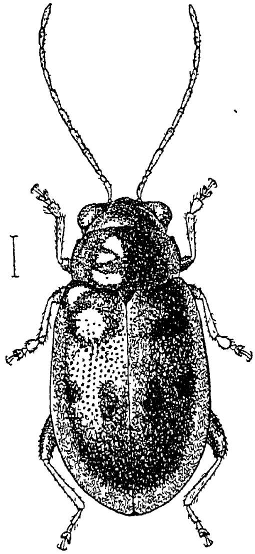

Fig. 71.—*Chalænosoma fulvitarsis*, Jac.

antennæ, tibiæ, and tarsi yellow-brown; labrum piceous; elytra with a transverse patch across the basal convex area and two patches transversely placed across the middle, purplish margined with green; apical purplish patches are absent; this scheme of

coloration is that of the type, but there may be some variation in this respect.

Head with vertex convex and finely punctate, not granulate, frontal elevations broadly transverse, clypeus triangular, convex. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second and third very small, as is usual in the genus, the fourth the longest; the following segments more or less nearly equal. *Prothorax* broader than long, sides feebly rounded, the four angles acute, the surface with fine and scattered, not granulate, punctures; across the middle is a shallow sulcus which is more distinct at the sides than in the middle. *Scutellum* triangular, its surface impunctate and not granulate. *Elytra* broader at base than prothorax, with the usual post-basal transverse depression, the surface strongly and closely punctate throughout, the punctures being coarser in the depression than elsewhere. *Unnderside*: first segment of the front and intermediate tarsi dilated in the male.

Length, 5–5½ mm.

NILGIRI HILLS.

Type in the British Museum.

When studying the insects of this genus, which is apparently confined to South India, it is difficult to resist the conception that at least three species, namely *Ch. metallica*, *Ch. fulvitarsis* and *Ch. cuprea*, are one and the same; they present differences which are more pronounced in coloration than in structure, although the latter is not absolutely uniform; but it seems impossible to settle this point without applying the test of experimental breeding.

129. **Chalænosoma antennata**, *Jacoby*.

Chalænosoma antennata, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 115.

Body rather elongate, scarcely widened behind. Colour metallic green; antennæ and legs yellow-brown; labrum black.

Head scarcely perceptibly punctate, minutely granulate; frontal elevations indistinct, bounded behind by a deep fovea; clypeus broadly triangular. Antennæ extending nearly to the apex of the elytra; first segment elongate, club-shaped, second and third segments very small, as is usual in the genus, fourth segment the longest, this and the following segments robust, rather widened and slightly curved in the male. *Prothorax* about twice as broad as long, sides nearly straight; surface finely granulate and with some very minute punctures, rather strongly transversely sulcate. *Scutellum* triangular, with surface impunctate. *Elytra* broader at base than prothorax, with a feeble depression behind the base, strongly and closely punctate, the interstices slightly transversely wrinkled, the extremely fine granulation of the surface not distinctly visible. *Underside* covered with pubescence; first segment of the anterior tarsi strongly dilated in the male.

Length, $4\frac{1}{2}$ mm.; *length of antennæ*, 3 mm.
PONDICHERRY (type-locality). NILGIRI HILLS (Andrewes Coll.).
Type in the British Museum.

This species, although closely resembling *Ch. viridis* in coloration, differs in the possession of long and robust antennæ in the male, and in having the elytra strongly punctured and wrinkled. In the female the antennæ are thinner, but the elytral punctuation is the same.

130. **Chalænosoma viridis**, *Jacoby*.

Chalænosoma viridis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 113.

Body narrowly elongate. Colour metallic green above, underside blackish or greenish; legs fulvous; labrum fulvous; antennæ yellow-brown; scutellum purplish.

Head with vertex very finely and sparsely punctate, surface granulate, frontal tubercles small, oblong. Antennæ rather long, extending to a little distance beyond the middle of the elytra; first segment elongate and club-shaped, second and third very small, as is normal in the genus, fourth elongate, fifth and the following segments somewhat wider in the male than the basal segments. *Prothorax* about twice as broad as long, sides almost straight, disc transversely sulcate across the middle, very finely and sparsely punctate, the surface finely granulate. *Scutellum* triangular, with surface granulate. *Elytra* slightly wider at base than prothorax, with a transverse depression behind the base (as is usual in the genus), finely rugose-punctate on a finely granulate surface. *Underside*: first segment of hind tarsi as long as the following segments together.

Length, 4–5 mm.
NILGIRI HILLS.
Type in the British Museum.

131. **Chalænosoma cuprea**, *Jacoby*.

Chalænosoma cuprea, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 114.

Body oblong-ovate, widened and convex behind. Colour metallic cupreous; antennæ fulvous with basal segment metallic blue; elytra with a spot or transverse patch at the base across the convex area, two others placed transversely at the middle and another at the apex, purplish with greenish margins; these spots are equivalent to similarly situated bands in *Ch. metallica* and *Ch. fulvitarsis*; legs metallic blue with tibiæ and tarsi black; scutellum purplish.

Head with vertex extremely finely and sparsely punctate, surface granulate, frontal tubercles narrowly transverse, clypeus triangular, narrow. Antennæ scarcely extending to the middle of the elytra; first segment elongate and club-shaped, second

small, third but slightly longer; the following segments are nearly equal. *Prothorax* transverse and short, anterior margin straight, sides somewhat rounded; surface rather convex, with a mixture of very minute and coarser punctures, while under a high power the surface, besides bearing these punctures, is finely granulate. *Scutellum* triangular, with surface granulate. *Elytra* broader at the base than the prothorax, with a depression behind the base, very finely punctate except within the depression, where the punctures are stronger, while besides bearing punctures the surface is extremely finely granulate. *Underside*: first segment of hind tarsi rather longer than the following segments together.

Length, 5 mm.

NILGIRI HILLS.

Type in the British Museum.

132. Chalænosoma metallicum *, *Jacoby*.

Chalænosoma metallicum, Jac., Trans. Ent. Soc. Lond. 1893, p. 157.

Body rather widened behind. Colour metallic green; antennæ, tibiæ and tarsi more or less black; labrum and mandibles black; basal segments of antennæ more or less obscure fulvous; elytra with a transverse band across the basal convex area, another at the middle, and a third narrower band near the apex, purplish; these bands are variable, sometimes reduced to spots; the basal purplish band is narrow, not extending to either the suture or the lateral margin, the median band is just behind the post-basal depression, extending to the lateral margin but not to the suture, the pre-apical band is much abbreviated, extending neither to the suture nor to the lateral margin; scutellum purplish.

Head convex, impunctate, frontal tubercles narrowly transverse, bounded by a deep channel behind, clypeus triangular, thickened. Antennæ extending to the middle of the elytra, the relative lengths of the segments as stated under the genus. *Prothorax* transverse, about one and a half millimetres broad and one millimetre long, convex, sides somewhat rounded, surface scarcely perceptibly punctate. *Scutellum* triangular. *Elytra* broader at base than prothorax and with a deep depression behind the base, strongly punctate within the depression; the rest of the surface less strongly but closely punctate: humerus convex; elytral margins narrowly explanate.

Length, 3½–5 mm.

NILGIRI HILLS.

Type in the British Museum.

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* Jacoby wrote the specific name of this, the type-species of the genus, with a neuter termination, thus making it agree with the second component of the generic name. But in describing the five other species ten years later, he gave the specific names of all of them feminine endings.

Genus CLEONICA, *Jacoby*.

Cleonica, Jac., Notes Leyd. Mus. ix, 1887, p. 233.

GENOTYPE, *Cleonica quadriplagiata*, Jac. (Sumatra).

Body oblong-ovate; eyes comparatively small and entire; maxillary palpi with penultimate segment thickened. Colour not metallic. Antennæ filiform, with all the segments except the second elongate, somewhat attenuated towards the apex (in the genotype the four apical segments are distinctly thinner). *Prothorax* short, very transverse, with surface transversely sulcate. *Elytra* irregularly, sometimes obsoletely, punctate, their epipleura continued to the apices; the humerus is pronounced and continued obliquely behind as a broad ridge. *Underside*: posterior femora moderately incrassate; tibiæ simple, unarmed; first segment of posterior tarsi as long as the two following segments together; claws appendiculate; anterior coxal cavities closed behind.

In his generic diagnosis Jacoby erroneously states that the anterior coxal cavities are open. Of the two examples from which his description is taken, one, marked "type," is in the British Museum, and this I have carefully examined, with the result that I am able to correct the error. The coxæ themselves are prominent, and this fact obstructs the view of the prosternal process, unless the insect is dissected under water.

Range. Assam, Perak, Malay Archipelago.

133. Cleonica nagaja *, sp. nov.

Body oblong. Colour pale brown; pronotum and breast darker brown; fourth to seventh segments of antennæ blackish, the two basal segments partly lighter brown and the four apical pitch-brown; elytra with the margins, suture, a transverse basal, and a similarly transverse postmedian, band, pitch-brown; scutellum generally light brown, in spite of the darker colour of the surrounding parts. In some specimens the dark markings on the elytra are paler or absent.

Head large, vertex impunctate, mouth-parts exserted, labrum large; carinæ within the narrow interantennal space well developed. Antennæ nearly reaching the apex of the elytra; first segment the longest and club-shaped, second small and rounded, third almost three times as long as second, and almost equal in length to each of the following segments, the last (eleventh) pointed; the first two segments smooth, shining and hairless, the rest covered with bristly hairs. *Prothorax* much broader than long, narrower than the base of the elytra; anterior and posterior margins more or less straight, lateral margins oblique, slightly

* From two Sanskrit words; *naga*, a mountain, and *janan*, to be born.

explanate; at each of the anterior and posterior angles is a fine seta; surface impunctate, smooth and shining, convex in front, and with a shallow transverse depression in front of the basal margin. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* parallel-sided with apex broadly rounded; suture prominent, slightly raised; humerus elevated, impunctate, continued slightly obliquely along the side as a broad ridge; lateral margins slightly explanate, the explanate portions being concave; the whole of the surface is confusedly and finely, sometimes obsoletely, punctate; there are a few scattered short hairs along the

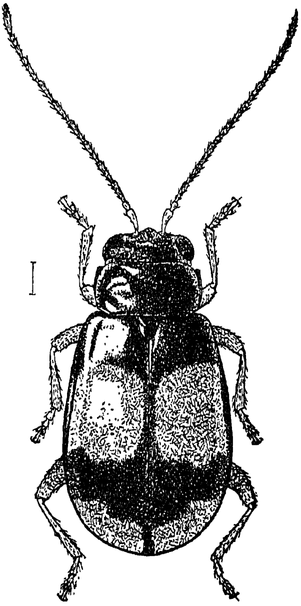

Fig. 72.—*Cleonica nagaja*, Maulik.

edge of the apex of the elytra. *Underside* smooth, impunctate, sparsely covered with hairs, which are more numerous on the apical portions of the abdominal sternites; epipleura of elytra continued, though narrow, almost to apex; anterior coxal cavities closed behind; posterior femora slightly incrassate; tibiæ cylindrical, not channelled, and unarmed at the apex; first segment of posterior tarsi almost equal in length to the two following segments; claws appendiculate.

Length, 4½ mm.

Assam: Patkai Mts. (*Doherty*); Sadiya Hills (*Doherty*).

Type in the British Museum. Described from ten examples.

Genus **MESOPA**, *Jacoby*.

Mesopa, Jac., Ann. Soc. Ent. Belg. xlvii. 1903, p. 112.

GENOTYPE, *Mesopa fulvipes*, Jac.

Body elongate, slightly broadened behind. Coloration metallic. *Head* broad; eyes very convex; antennæ almost as long as the body, terminal segments slightly thickened, second segment shorter than third. *Prothorax* quadrate, without any sulcus, anterior and posterior angles thickened. *Elytra* irregularly and closely punctate; humerus pronounced. *Underside*: prosternum invisible, hidden between the coxæ; anterior coxal cavities closed; legs slender, anterior and posterior tibiæ unarmed, not sulcate,

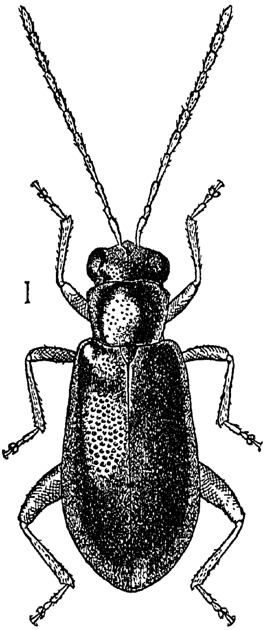

Fig. 73.—*Mesopa fulvipes*, Jac.

posterior femora strongly incrassate, first segment of posterior tarsi as long as the two following segments together, claws appendiculate.

This genus is allied to *Micraphthona*, Jac., and stands to some extent between GALERUCINÆ and HALTICINÆ, in that it has the prosternum invisible as in the former, and the femora strongly thickened as in the latter.

Range. India.

134. **Mesopa fulvipes**, *Jacoby.*

Mesopa fulvipes, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 113.

Body above dark cupreous with a greenish tinge; underside black; the four or five basal segments of the antennæ fulvous, the other segments fuscous; legs fulvous, the tarsi slightly fuscous at the apex; scutellum black.

Head broad, closely and rather strongly punctate, minutely granulate, subopaque, with a short but deep longitudinal median fovea above the bases of the antennæ; frontal elevations absent, interantennal short but distinct; eves large. Antennæ nearly as long as the body and stout; first segment rather long and stout, second small, third about equal to fourth; each of the following segments rather thickened, fifth equal to sixth, seventh a little shorter but almost equal to each of the following segments. *Prothorax* about as broad as long, sides straight, anterior and posterior lateral angles thickened, each of them possessing a setiferous pore, anterior and posterior margins straight; surface sculpture like that of the head, the sides being more closely punctate than the middle. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* broader at base than prothorax, rather strongly depressed at the base towards the outer margins; humerus strongly convex; immediately behind the base a large area is convex; the entire surface is very closely and strongly punctate, the punctures being scarcely finer near the apex. *Underside* convex, sparsely and finely punctate and very sparsely covered with fine hairs, which are more towards the sides; other structures as stated under the genus.

Length, 3 mm.; *breadth*, 1½ mm.

NILGIRI HILLS.

Type in the British Museum.

Genus **BIMALA** *, gen. nov.

GENOTYPE, *Erystus indicus*, Jacoby.

Body small, oblong-ovate. *Head* broad, eyes convex and antennæ situated close together, interantennal elevations more or less obsolete; there are two oblique, finely impressed lines proceeding from the upper edge of the eyes and converging towards the central part. Antennæ sparsely covered with fine hairs, long compared with the size of the insect; all the segments are not of equal thickness and the first is the longest. *Prothorax* broader than long, anterior margin almost straight with angles rounded, posterior margin widely arched with angles obtuse, each of the four angles bearing a fine seta; lateral margins rounded; surface convex and smooth without any impressions. *Scutellum* small and triangular. *Elytra* slightly broader at base than prothorax,

* Sanskrit, "without blemish."

somewhat narrowed towards the apex; surface smooth, finely confusedly punctate. *Underside*: the parts are as stated in description of the genotype.

I have proposed a new genus for this insect because it di from the genus *Erystus* in shape and in having the el punctuation confused.

Range. India.

135. **Bimala indica**, *Jacoby*.

Erystus indicus, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 265.

Body narrowly ovate. Colour of the head and its append the six or seven basal segments of the antennæ, the pronc and legs, light brown; the four apical segments of the ante elytra, scutellum, metasternum and abdominal sternites, p black.

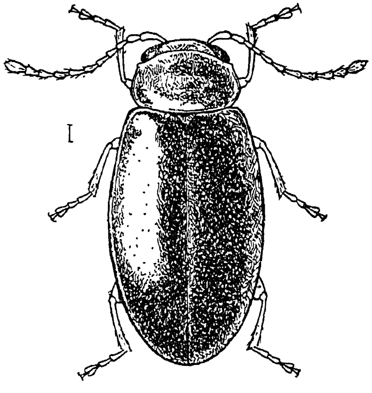

Fig. 74.—*Bimala indica*, Jac.

Head almost as broad as long, impunctate; eyes convex; fr elevations and carina entirely obsolete, clypeus narrowly ra Antennæ rather robust, reaching to the middle of the el sparsely covered with fine hairs; first segment longest and shaped, second much shorter than first but slightly longer third, fourth a little longer than third; from the fifth to the the segments become more elongate, slightly thicker and al equal; the last segment is pointed. *Prothorax* broader than l basal margin widely arcuate and slightly shorter than f margin, sides uniformly curved from the posterior to the ant angles, which are not prominent; surface smooth and impunc uniformly convex from side to side. *Scutellum* small, triang smooth. *Elytra* slightly broader at base than prothorax, grad narrowed behind; extremely minutely and confusedly punc

with the interstices very finely granulate when seen under a high power; epipleura broad at base, slightly narrowing towards the apex. *Underside* smooth, impunctate; anterior coxal cavities closed behind; first abdominal segment double the length of the second; posterior femora strongly incrassate, posterior tibiæ with a minute spine at the base.

Length, $2\frac{1}{2}$ mm.

BOMBAY: Belgaum (Andrewes Coll.).

Type and three more examples in the British Museum.

Genus MICRAPHTHONA, *Jacoby*.

Micraphthona, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 125.

GENOTYPE, *Micraphthona nigrita*, Jac.

Body oblong. *Head* broad, punctate. Antennæ slender, about as long as the body, with the basal segments as thick as the apical segments; second segment short, third twice as long, the following segments somewhat more elongate. *Prothorax* broader than long, as broad at its base as in front, the four lateral angles not produced, the surface without any sulcus, confusedly and closely punctate. *Elytra* broader at base than prothorax, confusedly and closely punctate, their epipleura narrow at about the middle but distinct. *Underside*: posterior femora moderately robust, tibia not sulcate, all armed with a small spine at the apex, but this is seen with difficulty; first segment of posterior tarsi as long as the following segments together; claws appendiculate; prosternum very narrow, rather indistinct; anterior coxal cavities closed behind.

The small species for which this genus has been erected resembles *Luperomorpha* in its general aspect, but differs in the relative lengths of the second and third segments of the antennæ and in having the anterior coxal cavities closed behind; the elytral epipleura are narrow posterior to the middle, and the anterior coxæ are closely approximated, so that the prosternum is extremely narrow; the posterior femora are, however, strongly enough incrassate to justify the placing of the genus in the HALTICINÆ.

Range. Assam.

136. Micraphthona nigrita, *Jacoby*.

Micraphthona nigrita, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 126.

Body black; legs fulvous; the three basal segments of the antennæ fulvous; apical half of the posterior femora piceous.

Head obsoletely punctate, frontal elevations indistinct, clypeus distinctly raised between the antennæ. The structure and relative lengths of the segments of the antennæ are as stated under the genus. *Prothorax* broader than long, sides nearly straight, angles

somewhat narrowed towards the apex; surface smooth, finely and confusedly punctate. *Underside*: the parts are as stated in the description of the genotype.

I have proposed a new genus for this insect because it differs from the genus *Erystus* in shape and in having the elytral punctuation confused.

Range. India.

135. **Bimala indica**, *Jacoby*.

Erystus indicus, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 265.

Body narrowly ovate. Colour of the head and its appendages, the six or seven basal segments of the antennæ, the pronotum and legs, light brown; the four apical segments of the antennæ, elytra, scutellum, metasternum and abdominal sternites, pitch-black.

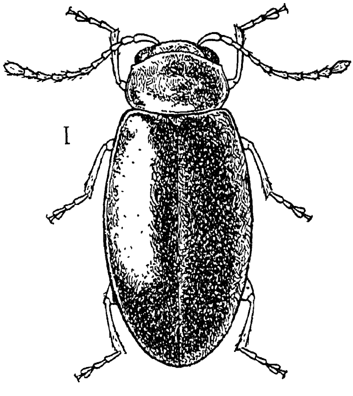

Fig. 74.—*Bimala indica*, Jac.

Head almost as broad as long, impunctate; eyes convex; frontal elevations and carina entirely obsolete, clypeus narrowly raised. Antennæ rather robust, reaching to the middle of the elytra, sparsely covered with fine hairs; first segment longest and club-shaped, second much shorter than first but slightly longer than third, fourth a little longer than third; from the fifth to the last the segments become more elongate, slightly thicker and almost equal; the last segment is pointed. *Prothorax* broader than long, basal margin widely arcuate and slightly shorter than front margin, sides uniformly curved from the posterior to the anterior angles, which are not prominent: surface smooth and impunctate, uniformly convex from side to side. *Scutellum* small, triangular, smooth. *Elytra* slightly broader at base than prothorax, gradually narrowed behind; extremely minutely and confusedly punctate,

not produced, basal margin slightly sinuate in front of the scutellum; surface closely and rather strongly punctate, the punctures shallow. *Scutellum* insignificant, triangular, with the surface rough. *Elytra* a little broader at base than prothorax, slightly widened behind, the shoulders somewhat prominent;

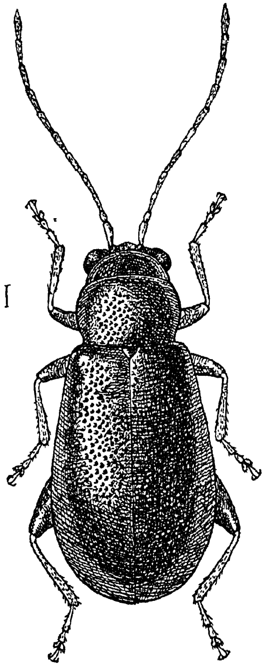

Fig. 75.—*Micraphthona nigrita*, Jac.

surface closely punctate and more strongly so than the pronotum. *Underside*: abdominal sternites shallowly punctate.

Length, $2\frac{1}{2}$ mm.

ASSAM: Khasi Hills.

Type in the British Museum.

Genus EUDOLIA, *Jacoby*.

Eudolia, Jac., Ann. Mus. Civ. Genova, xxii, 1885, p. 69.

GENOTYPE, *Eudolia sumatrana*, Jac. (Sumatra).

Body oblong. *Head* exserted, clypeus strongly elevated; eyes convex, entire; third segment of the maxillary palpi widened, fourth short, conical. Antennæ gradually dilated, slightly compressed, first segment slender and elongate; second and third

segments very short, equal in length in the genotype but not in the Indian species; in the males of some species the fifth and sixth segments are much thicker than the others, and are followed by two very short segments. *Prothorax* almost quadrate, broadened in front, deeply constricted near the base. *Scutellum* elongate, triangular. *Elytra* much broader than the prothorax, semi-punctate-striate; humerus prominent, strongly convex towards the base. *Underside*: posterior femora moderately incrassate; tibiæ not sulcate and without any spine at the apex; first segment of posterior tarsi as long as the three following together; prosternum very narrow; anterior coxal cavities closed behind; claws appendiculate.

Range. Sumatra, Borneo, Malay Peninsula, Burma, Assam, Himalayas.

No key of the three Indian species of this genus is given, for reasons stated below, under *Eudolia ratula* (p. 201).

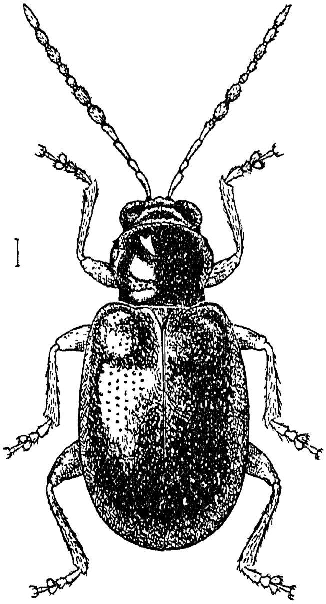

Fig. 76.—*Eudolia himalayensis*, Maulik.

137. **Eudolia himalayensis**, sp. nov.

Head, pronotum and scutellum dark chestnut-brown to black; legs and the four basal segments of the antennæ yellow-brown; the other segments of the antennæ piceous; elytra greenish-blue or violet; underside (and sometimes the posterior legs) dark tch-brown.

Head with vertex impunctate, separated from the rest of the surface by a transverse impressed line; interantennal space with two ridges, which broaden towards the apex and inclose a deeply impressed line. Antennæ extending to the middle of the body; first segment elongate and club-shaped, second small, third about twice as long as second and somewhat longer than fourth; in the male the fifth and sixth are greatly dilated; seventh and eighth small and equal, ninth longer, tenth and eleventh equal. *Prothorax* somewhat broader than long or almost quadrate, broadest in front and much narrowed behind at the constriction, a shallow transverse depression in which there are a few deep punctures; the rest of the surface is impunctate; anterior and posterior angles each bearing a fine seta. *Scutellum* elongate, triangular, surface impunctate. *Elytra* much broader at base than prothorax; surface closely punctate, the punctures forming irregular and closely-placed striæ, which may be about sixteen or seventeen in number, including the short scutellar row; the punctures are feeble and sparse on the convex basal and on the apical parts. *Underside* smooth, impunctate, and very sparsely covered with fine silvery hairs.

Length, 4–4½ mm.

UNITED PROVINCES: Kumaon, Almora, vi. 1917 (*H. G. Champion*). SIKKIM: Rungbong Valley, Gopaldhara (*H. Stevens*): this example has greenish-blue elytra and black pronotum.

Type in the British Museum. Described from five examples.

138. **Eudolia nila** *, sp. nov.

Upper side blue, sometimes tinged with violet; in the male the two basal, in the female the six basal, segments of the antennæ are brownish-yellow; legs brownish-yellow; underside black, abdominal sternites sometimes edged with brown.

Head with vertex impunctate, the transverse impression separating the vertex from the rest of the surface, and the interantennal ridges inclosing a longitudinal impression as in *E. himalayensis*. Antennæ extending to about the middle of the elytra; first segment elongate, second small, third about twice as long as second and slightly longer than, or about equal to, the fourth; the fifth and sixth in the male not so thickened as in *E. himalayensis*, but thicker than the basal segments; the two following shorter and small, ninth, tenth and eleventh almost equal, the latter pointed; in the female the apical segments from the fifth onwards are not thickened as in the male. *Prothorax* somewhat broader than long or almost quadrate, broadest in front, the setiferous pores at each of the four corners more prominent than in *E. himalayensis*; surface convex, more sloping on each side

* Sanskrit, "blue."

towards the base; in front of the basal line is a transverse depression, often interrupted in the middle and containing a few rather large punctures. *Scutellum* smooth, impunctate. *Elytra* elongate, parallel-sided, broadly rounded at apex; surface punctate, the punctures being arranged in closely-placed longitudinal rows, but the arrangement is not sufficiently regular for the rows to be definitely counted; on the convex basal and the apical parts the punctures are feeble and sparse, while they are strong and closely placed in the middle. *Underside* smooth, impunctate, sparsely covered with fine white hairs.

Length, 4½–5 mm.

BURMA: Ruby Mines (*Doherty*). ASSAM: Patkai Mts. (*Doherty*); Manipur (*Doherty*).

Type in the British Museum. Described from five examples.

139. **Eudolia ratula** *, sp. nov.

Head, prothorax, and basal segments of antennæ red-brown; apical segments of antennæ piceous; front and middle legs lighter brown; hind legs often very dark brown, but they may be as light as the other legs; underside black. The basal segments of the antennæ, the prothorax, and the legs may vary from quite a light to a deeper brown. The colour of the elytra is never a pure blue and varies to a shade which has a large admixture of violet.

In all essential features this species resembles the preceding two. The basal segments of the antennæ present a certain amount of variation in their relative lengths, especially the second, third and fourth; the second is sometimes quite small as compared with the third and sometimes not so, in the latter case the third is shorter than usual; similarly, the third may be either distinctly longer than, or almost equal to, the fourth; the fifth and sixth are considerably swollen in some cases, in others (males) they are less swollen, but still distinctly more dilated than the preceding segments. The variation in colour is described above.

Length, 3–4½ mm.

BURMA: Ruby Mines (*Doherty*); Momeik (*Doherty*). ASSAM: Patkai Mts. (*Doherty*); Sadiya (*Doherty*).

Type in the British Museum. Described from six examples.

This very variable insect may prove to be a form of the preceding species and, further, all the species of *Eudolia* from our regions may be really one. They all occur in mountainous parts, in the Himalayas or their eastern extensions. I also believe that the males (taken by themselves, leaving the females out of account) will show a dimorphism in the structure of the antennæ. But the material before me is insufficient to establish these points.

* From a Sanskrit root meaning "like."

Genus CHÆTOCNEMA, *Stephens.*

Chætocnema, Steph., Ill. Brit. iv, Ent. 1831, p. 325; Chapuis, Gen. Col. xi, 1875, p. 49; Fowler, Col. Brit. Is. iv, 1890, p. 385.
Udorpes, Motsch., Bull. Soc. Nat. Mosc. xviii, 1845, part 1, no. 1, p. 107.
Ydorpes, Motsch., op. cit., addendum at end of volume.
Hydropus, Gemminger & Harold, Cat. Col. xii, 1876, p. 3519.
Tlanoma, Motsch., Bull. Soc. Nat. Mosc. xviii, 1845, part 1, no. 1, p. 108.
Plectroscelis, Redtenb., Fauna Austriaca, 1st ed., 1849, p. 539, 2nd ed., 1858, p. 946; Chapuis, Gen. Col. xi, 1875, p. 48; Fowler, Col. Brit. Is. iv, 1890, p. 388.

GENOTYPE: *Altica hortensis,* Geoffroy, in Fourcroy, Ent. Paris, 1785, p. 98 = *Galeruca aridella,* Paykull, Faun. Suec. ii, 1799, p. 111.

Sometimes *Tlanoma,* Motsch., is regarded as a subgenus of *Chætocnema*; the type of *Tlanoma* was fixed by Motschulsky as *Haltica dentipes,* Koch, Ent. Heft. ii, 1803, p. 38 = *Chrysomela concinna,* Marsham, Ent. Brit. i, 1802, p. 196. In proposing the genus *Chætocnema* Stephens cites *aridella* as the first species, and this has been tacitly adopted as the type, although, as far as I am able to find out, it has not before been definitely fixed and published.

Small oval beetles, narrowed in front and behind, those from within our limits varying in size from one and a half to about three millimetres. Colour dark, often green with bronzy reflections; almost always the basal five or six segments of the antennæ, the front and middle legs and the posterior tibiæ and tarsi, are brown. *Head* generally broad without any frontal elevations; in one or two cases the interantennal space is very slightly and broadly raised; very often there is in the interocular space just above the roots of the antennæ a transverse impression, which is joined on each side by an impressed oblique line; this latter usually touches the upper edge of the eye at a tangent; in some cases a deep and more or less broad pit adjoins the inner margin of the eye; the whole surface may be punctate or impunctate or finely granulose, sometimes there are punctures on a granulose surface; interantennal space not very narrow; labrum often large, covering the mandibles. Antennæ never as long as the body, at least in those species from our regions; their length varies from reaching as far as the humerus to attaining the middle of the elytra; basal segment always thick and club-shaped, second as thick as, but always shorter than, first and always thicker than third; third to sixth segments generally of more slender build, their relative lengths varying to a certain extent; seventh to eleventh often somewhat stouter; the antennæ are generally very sparsely scattered over with fine hairs. Eyes generally strongly convex and more or less widely separated. *Prothorax* always broader than long, front margin more or less nearly straight, basal margin sometimes slightly produced into a lobe in the middle, lateral margins generally somewhat rounded, in some cases straight, each of the anterior and posterior angles bearing a fine seta arising from a

pore with a distinct base, anterior angles often thickened and obliquely truncate, posterior angles generally rounded; surface convex, considerably sloping down at the sides, always punctate; the punctures may be coarse or fine, closely placed or sparsely distributed, and besides this the surface may be finely granulose or smooth; in some species there is an impressed punctate line along the basal margin. *Scutellum* small, triangular, with apex broadly rounded, surface either finely granulose or without the granulation. *Elytra* generally almost of the same width at the base as the prothorax, but sometimes slightly wider, always punctate-striate, each elytron having usually eleven rows including the short scutellar row and the extreme marginal row; in some cases the punctures are crowded and less regular in the area round the scutellum, and on the disc the rows may not be quite straight; in some species all the interstices are distinctly costate, in others some of them tend to be costate on the lateral and apical parts of the elytron; in several species the interstices are very finely punctate, in others, again, the interstices are very close together and narrower than the seriate punctures themselves; the type of the genus has this kind of arrangement of the rows. *Underside* generally punctate and bearing fine hairs; epipleura of the elytra generally broader at the base, considerably narrowing towards the apex and often punctate; prosternum moderately broad and punctate; anterior coxal cavities closed behind; posterior femora considerably thickened; tibiæ and tarsi generally slender.

The important distinguishing character of the genus is that each of the middle and hind tibiæ possesses a long excavation of the outer edge (figs. 77–80) extending from its apex to a certain distance up the tibia; this emargination is fringed with bristly hairs, some of which, particularly those at the apices of the emargination, are developed into spines. The first segment of the tarsi is long, the third bilobed, and the claw segment projects to a certain extent beyond the bilobed segment; the claws themselves are separated and generally appendiculate.

Chætocnema is a natural genus with a characteristic build of the body which, once recognised, cannot be mistaken.

Range. World-wide.

Key to the Species.

1. Interstices between the longitudinal rows of punctures on the elytra very narrow, the rows being close to each other and the punctures themselves being larger, and sometimes more or less confused on the disc .... 2.
   Interstices broad and striæ regular ...... 4.
2. Punctuation more or less confused and striæ somewhat irregular on the middle of the disc .... *Ch. pusaensis*, sp. n., [p. 205.

Striæ regular, though very close to each other; punctuation not confused on the middle of the disc .... 3.

3. Length 3 mm.; form much broader and larger; punctures stronger .... *Ch. birmanica*, Jac., [p. 206.

Length always less than 3 mm. (usually about 2 mm.); punctures less strong.. *Ch. concinnipennis*, Baly, [p. 207.

4. Along the basal margin of the pronotum is an impressed line containing a regular transverse row of punctures .... 5.

No impressed punctate line is present .... 7.

5. Interstices between the rows of punctures on the elytra densely punctate and transversely wrinkled; surface round the scutellum gently convex .... *Ch. nagpurensis*, Duviv., [p. 208.

Interstices not densely punctate and not transversely wrinkled; surface round the scutellum not gently convex .... 6.

6. Larger insects (3⅛ mm. long); colour greenish-black, sides of pronotum almost impunctate, elytral interstices finely punctate .... *Ch. duvivieri*, Jac., p. 208.

Insect smaller (2 mm. long); colour purer black, pronotum finely and uniformly punctate, elytral interstices hardly punctate .... *Ch. basalis*, Baly, p. 209.

7. All the interstices between the rows of punctures on the elytra distinctly costate .... 8.

All the interstices not distinctly costate.. 12.

8. Head impunctate; costæ on elytra more pronounced behind the middle; colour uniformly dark piceous.............. 9.

No such combination of characters...... 10.

9. Clypeus deeply punctate .... *Ch. subcostata*, Jac., [p. 210.

Clypeus not punctate .... *Ch. montivaga*, sp. n., [p. 211.

10. Pronotum very closely punctate; a somewhat large triangular area of the elytra round the scutellum confusedly punctate; on the disc a few of the rows nearer the suture are not perfectly straight .... *Ch. harita*, sp. n., p. 211.

Pronotum less closely punctate; in the scutellar row on the elytra the punctuation may be irregular, but there is no triangular area with confused punctuation; all the rows are perfectly straight .... 11.

11. Larger and broader insects (2½ mm. long); pronotal punctures almost as large as, or very slightly smaller than, elytral punctures .... *Ch. bretinghami*, Baly, [p. 212.

Smaller and narrower insects (about 2 mm. long); pronotal punctures distinctly finer than elytral punctures.......... *Ch. singala*, sp. n., p. 212.

12. Interstices between the rows of punctures on the elytra distinctly but finely punctate .... 13.
  Interstices not distinctly punctate ...... 16.

13. Surface of head granulate; pronotum very closely punctate, with the interstices finely granulate... .... 14.
  Surface of head not granulate; pronotum more sparsely punctate, with interstices not granulate......... .. .. *Ch. sticta*, sp. n., p. 213.

14. Pronotum more narrowed in front, punctures very close; insect small ($1\frac{3}{4}$ mm. long) .... *Ch. minuta*, Jac., p. 214.
  ronotum broader, not so narrowed in front, punctures not so close; insect always more than $1\frac{3}{4}$ mm. long ...... 15.

15. Pronotal punctures, at least those towards the base of the disc, somewhat elongate. *Ch. longipunctata*, sp. n., [p. 215.
  Pronotal punctures round and bold...... *Ch. kanika*, sp. n., p. 216.

16. Colour greenish with a slight bronzy tinge. *Ch. cognata*, Baly, p. 216.
  Colour deep bronze or æneous, with little definitely greenish tint .... 17.

17. Interstices between the rows of punctures on the elytra, particularly those near the scutellar row, wrinkled and slightly depressed behind the scutellum; all the femora dark..................... *Ch. alticola*, sp. n., [p. 217.
  Interstices smooth and flat, not slightly depressed behind the scutellum ...... *Ch. belli*, Jac., p. 218.

Translations of Motschulsky's descriptions of three of his species, *nigrica*, *puncticollis* and *gracilis* (which were placed by him in *Tlanoma*, Motsch.), are given on pp. 219–20, but no attempt has been made to incorporate them in the above key.

140. Chætocnema pusaensis, sp. nov.

Body ovate, narrowed behind but not so much in front. Colour greenish-æneous; tibiæ, tarsi and the basal four or five segments of the antennæ, brownish; the front and intermediate femora and the rest of the antennal segments piceous or fuscous.

Head broad, with the vertex closely punctate on a finely granulate surface: interocular space just above the antennæ with a deeply-impressed transverse line, meeting two oblique lines almost touching the eyes at the vertex; eyes convex; clypeus more coarsely punctate. Antennæ extending almost to the middle of the elytra; first segment long and club-shaped, second shorter, third to sixth almost equal, the rest somewhat thickened. *Prothorax* broader than long, sides gently rounded, slightly margined; surface convex, uniformly covered with fine punctures which are more or less of the same size. *Scutellum* triangular, small, broader than long, impunctate. *Elytra* hardly broader at base than prothorax, narrowed behind, punctate-striate, the striæ being more

regular on the lateral and apical parts than on the middle of the disc and particularly that part round the scutellum; owing to this comparative irregularity of the rows on the disc it is sometimes to be observed that the punctures are arranged in double rows.

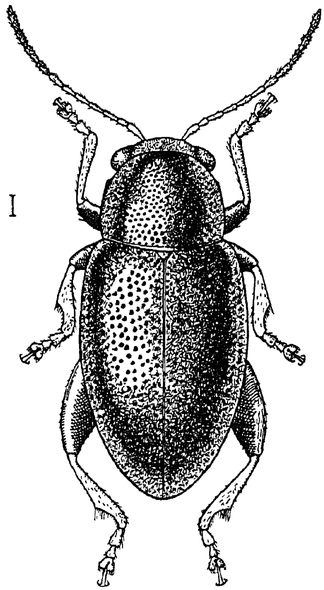

Fig. 77.—*Chætocnema pusaensis*, Maulik.

Underside punctate, very sparsely covered with silvery hairs; structure of the parts as stated under the genus.

Length, $2\frac{1}{4}$ mm.

BIHAR: Pusa, 6. vii. 1920, boring in stem of *Panicum miliaceum*, L. (common millet), 31 examples (Pusa Coll.). MADRAS: Vizagapatam District, Chipurupalle, 2 specimens (*R. S. Patuck*, British Museum).

Type in the British Museum.

141. **Chætocnema birmanica**, *Jacoby*.

Chætocnema birmanica, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 939.

Colour obscure cupreo-æneous; the three basal segments of the antennæ and the tibiæ more or less brownish; anterior femora slightly, posterior more darkly, æneous; tibiæ and tarsi in some parts stained with æneous.

Head broader than long, closely, strongly and rugosely punctate, the interstices minutely granulate and only just separating the punctures; lower portion of face clothed with white pubescence; eyes very widely separated. Antennæ extending to about the middle of the elytra; third segment very slightly shorter than the fourth and a little longer than the thickened second segment; the five apical segments somewhat thickened. *Prothorax* convex, broader than long, sides nearly straight, anterior angles very slightly oblique; surface strongly and closely punctate, the interstices, more especially at the sides, slightly reticulate. *Scutellum* small, triangular, broader than long, impunctate. *Elytra* not wider at base than prothorax, but gradually widened towards the middle and there narrowing to the apex; strongly punctate, the punctures arranged in closely-placed rows, the interstices scarcely wider than the punctures; the rows are not everywhere quite regular, and the interstices at the sides form two slightly-raised longitudinal costæ on each elytron. *Underside*: prosternum and breast strongly punctate.

Length, 3 mm.

BURMA: Rangoon, xii. 1888 (*Fea*).

Type in the Genoa Museum. One example, also marked "type" and with Fea's label, in the British Museum (Jacoby Coll.).

142. **Chætocnema concinnipennis**, *Baly*.

Chætocnema concinnipennis, Baly, Trans. Ent. Soc. Lond. 1877, p. 170.

Body ovate. Colour shining brassy-greenish or bluish; antennæ and legs obscure tawny-reddish; posterior femora sometimes darker or pitchy; labrum shining black.

Head with vertex and front finely granulose, punctate, clypeus rugose-punctate, clothed with whitish hairs, labrum broad. Antennæ scarcely more than half the length of the body; third to fifth segments slender, almost equal; the rest of the segments somewhat thickened. *Prothorax* about twice as broad as long, sides straight but oblique, rounded and converging in front, anterior angles thickened; surface convex, subcylindrical in front, and closely covered with deep and strong punctures. *Scutellum* broader than long, triangular with apex rounded, impunctate. *Elytra* broadly ovate, somewhat narrowed towards the apex, humeral callus thickened: surface closely covered with longitudinal rows of punctures, the latter having a greater diameter than the width of the intervals, which are subcostate along the lateral margin and on the apical portion. In the closeness of the longitudinal striæ this species resembles *Ch. birmanica*, Jac., which is a much broader and larger species. *Underside* punctate; elytral epipleura with rows of punctures; other parts as described under the genus.

Length, a little more than 2 mm.

INDIA (type-locality, *Bretingham*). BENGAL: Sundarbans (*F. W. C. Champion*); Calcutta, museum tank, 14. viii. 1906 (Indian Museum). BIHAR: Pusa, Harpur, boring stems of seedling paddy, 12. v. 1919 (Pusa Coll.). SIKKIM: Mungphu (*Atkinson*). ASSAM: Sylhet (British Museum). SOUTH INDIA: Nilgiri Hills (*H. L. Andrewes*). CEYLON: Hambantota, 25. xi. 1907 (*T. B. Fletcher*); Tandalle, 30. xi. 1907 (*T. B. Fletcher*).

Type in the British Museum.

143. **Chætocnema nagpurensis**, *Duvivier*.

Chætocnema nagpurensis, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 422.

Subovate, moderately convex. Black, with head, prothorax and elytra bronze, antennæ and legs light brown, posterior femora bronzy-black, anterior and intermediate femora marked with pitchy-black.

Head finely rugulose and finely punctate, without frontal carina, with a small depression between the eyes, and the front large and declivous. *Prothorax* about one and a half times broader than long, transversely convex, with the anterior lateral angles placed in a lower plane, sides almost straight; surface rugulose, somewhat closely, very finely and uniformly punctate; along the basal margin is an uninterrupted series of strong and deep punctures. *Elytra* somewhat broader at base than prothorax, with the humerus moderately prominent; strongly punctate-striate, the interstices subconvex, densely punctate and transversely wrinkled, the area surrounding the scutellum very gently convex.

Length, 2 mm.

BIHAR: Barwa [Barway] (*Père Cardon*).

The location of the *type* is unknown to me; I have heard from Mons. Severin that it is not in the Brussels Museum. The species was described from one example. The above description is a translation from the original French.

144. **Chætocnema duvivieri**, *Jacoby*.

Chætocnema duvivieri, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 939.

Colour greenish-black; the five basal segments of the antennæ brown, the rest of the antennal segments black; the four anterior femora stained with pitchy colour, posterior femora greenish-black, remaining parts of legs brown.

Head broad and robust, finely and sparingly punctate, eyes distant, frontal tubercles entirely absent, clypeus broad, deflexed, labrum and lower portion of the face very short, abruptly truncate, furnished with some single whitish hairs. Antennæ extending to half the length of the elytra; third and fourth segments equal, scarcely longer than second but much thinner, terminal segments

slightly thickened. *Prothorax* twice as broad as long, sides but slightly rounded, anterior angles oblique, base with a very narrow margin, accompanied by an entire transverse impressed line; surface closely and finely punctate, the sides rather more finely punctate, almost impunctate near the lateral margin. *Scutellum* broader than long. *Elytra* broad, moderately convex, strongly punctate-striate, the interstices very minutely punctate, those at the sides of the elytra convex.

Length, $3\frac{1}{8}$ mm.

TENASSERIM; Thagata.

Type in the Genoa Museum. Described from a single specimen. I have not seen this species.

145. **Chætocnema basalis**, *Baly*.

Chætocnema basalis, Baly, Trans. Ent. Soc. Lond. 1877, p. 310.
Chætocnema parvula, Baly, *l. c.*
Chætocnema geniculata, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 270.

Ovate. Black, shining; underside piceous; posterior femora black except at the apex; tibiæ and tarsi brownish-piceous; the four basal segments of the antennæ brown, the rest pitchy-black.

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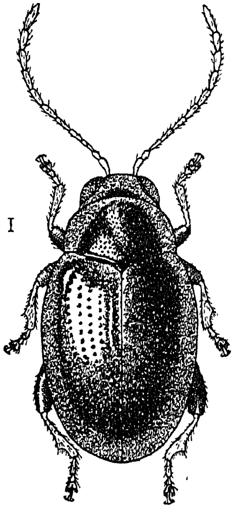

Fig. 78.—*Chætocnema basalis*, Baly.

Head with vertex and front impunctate, very finely granulose; front impressed on either side above the eye with a short longitudinal furrow, which runs downwards into the oblique impression separating the interocular space from the front; immediately exterior to this furrow on either side is a single round fovea; interantennal carina narrowly oblong, its lower apex acuminate.

Antennæ slender, more than half the length of the body; from the third onwards the segments are nearly equal; the apical segments may be very slightly thickened. *Prothorax* much broader than long, sides converging and rounded from base to front, anterior angles thickened; surface convex, shining, impressed, but not deeply or very closely, with punctures, some of which appear to be oblong and all of which are smaller than the elytral punctures; posterior border distinctly margined and impressed with a single row of deeper punctures. *Scutellum* small, triangular, with apex broadly rounded, impunctate. *Elytra* broader than prothorax at base, attenuated towards the apex, convex; regularly punctate-striate, each elytron having eleven rows, including a scutellar and a marginal row; interstices flat, but the anterior portion of the outermost interstices is somewhat thickened. *Underside*: elytral epipleura with a marginal longitudinal row of punctures.

Length, $1\frac{1}{2}$–2 mm.

INDIA (type-locality of *basalis*). CEYLON (type-locality of *parvula*). BURMA (type-locality of *geniculata*).

BOMBAY: Khandesh (*T. R. Bell*); Belgaum (Jacoby Coll.). NILGIRI HILLS (*H. L. Andrewes*). BURMA: Tharrawaddy (Andrewes Coll.). TENASSERIM: Tavoy (*Doherty*). ASSAM (*Doherty*).

I have compared very carefully the three types alluded to above, which are all in the British Museum, but I can find no essential difference to separate them. The species has a wide distribution in India, Burma, and Ceylon.

146. Chætocnema subcostata, *Jacoby*.

Chætocnema subcostata, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 203.

Body robust. Colour piceous or nearly black; antennæ pale yellow, the terminal segments stained with fuscous; legs dark brown, the anterior ones paler; labrum brown.

Head impunctate, vertex convex, inner margins of eyes bearing some deep punctures, frontal tubercles and carina absent, interocular space with a distinct transverse impression; clypeus broad, deeply punctate at each side, its anterior margin straight. Antennæ two-thirds the length of the body; basal segment very long, third segment one-half longer than second and equal to the following segments. *Prothorax* more than twice as broad as long, sides perfectly straight, anterior angles oblique and thickened; surface minutely granulate, closely and finely punctate. *Scutellum* much broader than long. *Elytra* deeply and regularly punctate-striate; the interstices longitudinally costate, especially behind the middle, and impunctate.

Length, $3\frac{3}{4}$ mm.

BURMA: Teinzo (*Fea*).

Type in the Genoa Museum. I have not seen the type of this species.

147. **Chætocnema montivaga**, sp. nov.

Body ovate, broadest at the base of the elytra, then gradually narrowed behind. Colour pitch-brown to black; the six basal segments of the antennæ, the front and middle legs, the posterior tibiæ and tarsi, brown, these parts being much lighter in the lighter specimens.

Head with vertex impunctate, surface granulate; interantennal carina somewhat raised longitudinally, its upper end terminated by an angled impression, on each side of which is a deeply-impressed oblique line meeting tangentially the top of the eye; at one point on this line is a deep pit situated on the inner side of the eye; clypeus impunctate. Antennæ moderately stout, extending a little distance beyond the humerus; first segment long and club-shaped, small, third somewhat longer than fourth, the rest more or less nearly equal. *Prothorax* broader than long, sides more or less straight, anterior lateral angles thickened and truncate, basal margin slightly produced into a broad lobe in the middle; surface convex, very finely granulate and uniformly but not very closely punctate. *Scutellum* broader than long with apex widely rounded, impunctate, extremely finely granulate, the granulation only visible under a high power. *Elytra* hardly broader at base than prothorax; each elytron with eleven regular rows of punctures, including a short scutellar and an extreme marginal row; interstices costate and very finely punctate, this fine punctuation visible under a high power. *Underside* very sparsely covered with fine silvery hairs.

Length, 3 mm.

ASSAM: Patkai Mts., 2 examples (*Doherty*). TENASSERIM: Mergui, 1 example (*Doherty*). MALAY PENINSULA: mountains of Perak, 1 example (*Doherty*).

Type in the British Museum. Described from four examples.

148. **Chætocnema harita** *, sp. nov.

Body ovate, pointed behind. Colour bronzy-green, the bronze or the green predominating in different cases; the six basal segments of the antennæ, front and middle legs, posterior tibiæ and tarsi, brown; the rest of the antennal segments piceous.

Head closely punctate; interocular space just above the antennæ with a short and transversely impressed line; rest of surface closely punctate but without any elevations. Antennæ extending to a certain distance beyond the humerus; first segment long, club-shaped, second smaller, third to sixth slender, third and fourth equal, fifth and sixth equal, the rest somewhat thickened. *Prothorax* broader than long, sides almost straight or very gently rounded, anterior angles thickened; surface convex, closely covered with coarse punctures. *Scutellum* small, triangular,

* Sanskrit for a shade of green.

impunctate. *Elytra* somewhat broader at base than prothorax, regularly punctate-striate, but the series nearer the suture are not perfectly straight; interstices costate; each elytron has ten distinct rows of punctures, including an extreme marginal row; round the scutellum a triangular area is confusedly punctate; the elytral punctures are deep and large. *Underside* very sparsely covered with fine hairs.

Length, 2½ mm.

MADRAS: Vizagapatam District, Chipurupalle (*R. S. Patuck*).

Type in the British Museum. Described from two examples.

149. Chætocnema bretinghami, *Baly*.

Chætocnema bretinghami, Baly, Trans. Ent. Soc. Lond. 1877, p. 170.

Body ovate, narrowed behind. Colour bright coppery- or brassy-green; legs, except the posterior femora, yellow-brown; the six basal segments of the antennæ yellow-brown, the rest of these organs dilute piceous.

Head with vertex more or less convex, strongly punctate. Antennæ slender, half the length of the body; third to sixth segments more slender than the others and more or less nearly equal, the rest of the segments somewhat thickened. *Prothorax* about twice as broad at the base as long, sides rounded, converging from base to front, posterior lateral corners nearly right angles, anterior angles thickened; surface convex, subcylindrical in front, strongly and closely punctate, the punctures being more distant in the middle. *Scutellum* broader than long, half-round. *Elytra* ovate, attenuated towards the apex; strongly and deeply punctate-striate, each elytron having eleven longitudinal rows, including a short scutellar and an extreme marginal row; along the scutellar row there are a few additional punctures; interstices costate, more strongly so at the apex and the sides; the surface of the raised interstices is very finely reticulate, as can be seen under a high power. *Underside* punctate.

Length, 2½ mm.

INDIA (*Bretingham*). BIHAR: Pusa, on grass, 24. i. 1906 (*R. P. V.*).

Type in the British Museum.

150. Chætocnema singala *, sp. nov.

Ovate. Colour greenish with a slight bronzy tinge; the six basal segments of the antennæ, tibiæ and tarsi, brown; the rest of the antennal segments and the femora piceous, the posterior femora more strongly so.

Head coarsely and closely punctate, without any elevations at all; the transverse impressed line, just above the roots of the

* Sanskrit, "Ceylon."

antennæ, and the oblique lines are present but not very prominent. Antennæ short, hardly extending to the base of the pronotum; first and second segments as usual in the genus, third to sixth more slender, equal except that the fifth is slightly longer, the rest somewhat thicker and equal. *Prothorax* broader than long, sides almost straight or gently rounded; surface convex, closely punctate, the punctures somewhat smaller than those of the elytra. *Scutellum* broader than long, triangular with apex broadly rounded; under a high power the surface is seen to be finely reticulate. *Elytra* hardly broader at base than prothorax, regularly punctate-striate; the interstices raised, this being more pronounced at the apex and sides; seen under a high power the interstices are reticulate; on each elytron there are eleven rows, including a short scutellar and an extreme marginal row.

Length, 2 mm.

CEYLON: Colombo, v. (*H. P. Green*).

Type in the British Museum. Described from one example.

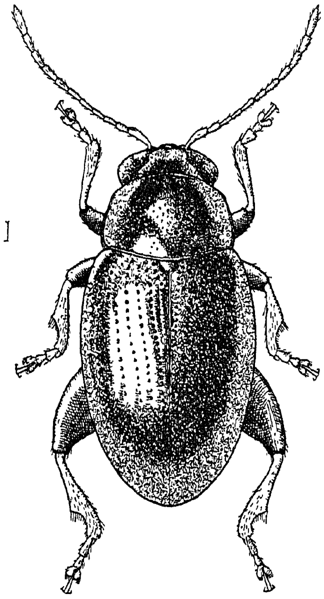

Fig. 79.—*Chætocnema sticta*, Maulik.

151. Chætocnema sticta, sp. nov.

Form ovate. Colour blackish with a bronzy tinge; the five or six basal segments of the antennæ, the front and middle legs, and the posterior tibiæ and tarsi, brown; the rest of the antennal

segments are sometimes pitchy, and the brown parts are sometimes of a deeper shade.

Head with vertex finely and sparsely punctate; the transverse and oblique channels in the interocular space are deep, and sometimes deeply excavated near the inner edge of each eye, the excavation containing punctures; owing to the depth of the channels, which extend to the interantennal space, part of the latter appears to be longitudinally raised. Antennæ extending to a certain distance beyond the humerus; first and second segments as usual in the genus, third to sixth more slender and more or less nearly equal, the second about equal in length to the third, though thicker, the rest of the segments very slightly thicker and equal. *Prothorax* broader than long, sides gently rounded, anterior lateral angles somewhat thickened; surface convex, more or less sparsely and finely punctate, the punctures being finer than those of the elytra, the interstices not granulate. *Scutellum* broader than long, triangular with the apex broadly rounded and the surface impunctate. *Elytra* very slightly broader at base than prothorax, regularly punctate-striate; interstices flat, some of them having a tendency to become costate towards the apex, and very finely and sparsely punctate. *Underside* very sparsely covered with fine hairs.

Length, $2\frac{1}{4}$–3 mm.

UNITED PROVINCES: Kumaon, Ranikhet, 13 examples (*H. G. Champion*). TENASSERIM: Tavoy, 5 examples (*Doherty*).

Type in the British Museum.

While describing this species I had before me all the examples from the two localities stated above, and the following slight variations were observed. The specimens from Kumaon generally have the pronotal punctures more marked than those of the examples from Tenasserim; the difference is so great that the idea of two species being present among this lot of specimens would have been justified, did not one example from Kumaon show pronotal punctuation similar to that of the specimens from Tenasserim. Among all the examples there is a certain amount of variation in the coloration of the brown parts; in some they are more brown than pitchy, and the latter colour may be of a deeper or of a more or less dilute shade.

152. Chætocnema minuta, *Jacoby*.

Chætocnema minuta, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 271.

Body ovate, narrowed in front and behind. Colour obscure æneous; anterior legs and posterior tibiæ more or less yellowish; the five or six basal segments of the antennæ tawny, the rest brownish-black.

Head minutely granulose, with a few very fine punctures between the eyes; frontal elevations absent. Antennæ extending a little distance beyond the pronotum; third to sixth segments

slender and almost equal, seventh to eleventh thickened to form a club. *Prothorax* scarcely twice as broad as long, sides nearly straight, gradually narrowed in front, anterior angles scarcely oblique, the usual seta placed much below the angles; surface minutely and closely punctate, interstices finely granulate. *Scutellum* broader than long, granulate. *Elytra* moderately strongly punctate-striate, each elytron having eleven rows, including a scutellar and an extreme marginal row, the punctures very closely placed in the striæ, the short sutural row as regular as the others: interstices extremely minutely punctate, this being only visible under a strong lens; the interstices at the sides slightly costate. *Underside*: elytral epipleura impunctate; posterior tibiæ strongly emarginate beyond the middle, with a long spine; first segment of the hind tarsi as long as the following segments together.

Length, $1\frac{3}{4}$ mm.

BOMBAY: Belgaum (Andrewes Coll.).

Type in the British Museum. Some of the specimens are labelled "*Ch. minuta*" and some "*Ch. indica*, Weise," but the latter labels are not in Weise's handwriting and all the examples appear to have been determined by Jacoby. I am unable to trace any published species called *Ch. indica*, Weise, and it seems to be merely a manuscript name.

153. **Chætocnema longipunctata**, sp. nov.

Body ovate. Colour black; antennæ, tibiæ and tarsi brown; the five or six apical segments of the antennæ and the femora piceous, the hind femora being of a deeper shade.

Head impunctate, but the whole surface is finely granulate; the oblique channels on the inner side of the eyes very deep and broad, continued to the interantennal space, the short transverse furrow just above the roots of the antennæ equally deep and terminated on each side by the oblique channels. Antennæ extending to a certain distance beyond the humerus; first two segments as stated under the genus, third to sixth more slender, more or less nearly equal, the rest somewhat thickened. *Prothorax* broader than long, sides almost straight; surface convex, very finely granulose, and covered with fine punctures, which are more or less elongate, particularly those near the base. *Scutellum* broad, with the apex broadly rounded; surface very finely granulose. *Elytra* hardly broader at base than prothorax, regularly punctate-striate, the punctures being much larger than those of the pronotum; on each elytron there are eleven rows of punctures, including a short scutellar row and an extreme marginal row: interstices very finely punctate, some of them tending to be costate towards the apex; surface not granulose. *Underside*: characters as under the genus.

Length, 2 mm.

CEYLON: Halupahani, Haldummulla.

Type in the British Museum. Described from one example.

154. Chætocnema kanika *, sp. nov.

Body ovate. Colour black; antennæ and legs dark brown, the posterior femora sometimes of a deeper shade.

Head finely granulate and without punctures; on each side close to the eye there is a channel, which is not oblique; these channels give the front the appearance of being slightly raised; frontal elevations and carina absent. Antennæ extending to a little distance beyond the humeral callus; first two segments as stated under the genus, third to sixth more slender and more or less nearly equal, the rest somewhat thicker. *Prothorax* broader than long, sides almost straight; surface convex, finely granulose, closely punctate, the punctures round and not elongate as in *Ch. longipunctatus*. *Scutellum* small, triangular with the apex broadly rounded; surface impunctate. *Elytra* slightly broader at base than prothorax, regularly punctate-striate, each elytron having eleven rows, including a short scutellar row and an extreme marginal row; interstices very finely and minutely punctate, some of them tending to be costate near the apex. *Underside*: characters as stated under the genus.

Length, 2 mm.

? CALCUTTA.

Type in the Indian Museum.

Described from two examples in the Indian Museum. The labels on these have simply the word "Calcutta", but it is doubtful whether the locality at which they were captured is actually Calcutta.

155. Chætocnema cognata, *Baly*.

Chætocnema cognata, Baly, Trans. Ent. Soc. Lond. 1877, p. 168.
Chætocnema squarrosa, Baly, Trans. Ent. Soc. Lond. 1877, p. 169.

Body ovate. Shining coppery- or brassy-green; the five or six basal segments of the antennæ and the legs brown, the rest of the antennal segments and the posterior femora pitchy, but with a metallic tinge; labrum shining black.

Head with vertex somewhat convex, the whole surface finely granulose and deeply but not very closely punctate; frontal elevations absent, as is usual in this genus. Antennæ less than, or about half of, the length of the body; third to sixth segments slender, the following segments somewhat thickened. *Prothorax* about twice as broad as long, sides straight but oblique, rounded and converging in front, anterior angles thickened, posterior widely rounded; surface transversely convex, minutely granulose, distinctly but not very closely punctate, the punctures being closer at the sides than in the middle. *Scutellum* small, triangular and impunctate. *Elytra* broadly ovate, somewhat narrowed towards the apex, punctate-striate, each elytron having eleven regular

* Sanskrit, conveying the sense of minuteness.

longitudinal rows, including the scutellar and the extreme marginal row; along the scutellar row there are additional punctures besides those of the regular series; interstices towards the apex and sides tending to be costate; surface of the interstices finely granulose, not punctate. *Underside* punctate; elytral epipleura with rows of punctures; other parts as under the genus.

Lengths of the types of *Ch. cognata* and *Ch. squarrosa*, 2 mm.; some other examples are 2½ mm. long.

INDIA (*Bretingham*; type-locality of both *cognata* and *squarrosa*). BENGAL: Calcutta, 4–21. viii. 1906 (Indian Museum). BIHAR: Pusa, 24. i. & 4. ii. 1906, on grass (Pusa Coll.); Kierpur, Purnea District, 8. x. 1915, at light (*C. Paiva*, Indian Museum). UNITED PROVINCES: West Almora, Kumaon (*H. G. Champion*). MADRAS: Rambha, Ganjam District, at light (*N. Annandale*, Indian Museum); Chipurupalle, Vizagapatam District (*R. S. Patuck*). CEYLON: Hambantota, ix. 1890 (*H. P. Green*).

Types of both *cognata* and *squarrosa* in the British Museum. I have examined them both and cannot find any difference sufficient to justify the maintenance of *Ch. squarrosa* as a separate species. The only distinction on which Baly seemed to rely is the length of the antennæ; in *Ch. squarrosa* they are "less than half the length of the body" and in *Ch. cognata* they are "half the length of the body." Perhaps he was justified in taking the view which he did take when he had the two insects before him; but having before me thirty-two examples from various localities, I believe that the slight difference in the length of the antennæ is not sufficient to separate them into two species.

156. **Chætocnema alticola**, sp. nov.

Form ovate, but appearing more nearly parallel-sided than some species. Colour bronzy; the six basal segments of the antennæ, front and middle legs, posterior tibiæ and tarsi, dark brown, sometimes mixed with pitchy; the rest of the antennal segments blackish.

Head broad, closely punctate; the transverse line between the roots of the antennæ well impressed, the oblique lines extending from either end of this transverse line towards the eyes being almost obsolescent. Antennæ somewhat thick, reaching to about the humeral callus or a little beyond it; first segment large and club-shaped, second also equally thick but smaller, third to sixth less thick, third and fourth about equal, fifth somewhat longer than sixth; from the seventh to the eleventh the segments are thickened and nearly equal. *Prothorax* broader than long, sides nearly straight; surface convex and not very closely punctate, some of the punctures larger than others; besides being punctured the whole surface is minutely granulate. *Scutellum* small, triangular with the apex broadly rounded and the surface finely granulate. *Elytra* not broader at base than prothorax, regularly punctate-striate, each elytron having eleven rows, including a

scutellar row and an extreme marginal row; inside the scutellar row there may be some additional punctures; surface round the scutellum depressed and more or less wrinkled, interstices not smooth, indistinctly reticulate and granulate. *Underside* not very closely punctate and sparsely covered with silvery hairs.

Length, $2\frac{1}{2}$ mm.

UNITED PROVINCES: N. Kumaon, Laptel, 15,000 ft. (*H. G. Champion*).

Type in the British Museum. Described from four examples.

157. **Chætocnema belli**, *Jacoby*.

Chætocnema belli, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 392.

Body ovate, pointed behind. Colour dark æneous, with much less greenish tint than in some species; the four basal segments of the antennæ and the legs are yellow, the seven apical segments of the antennæ dilute pitchy; posterior femora pitchy.

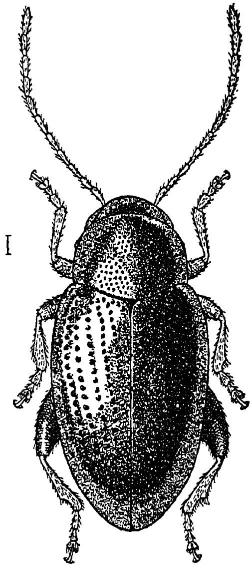

Fig. 80.—*Chætocnema belli*, Jac.

Head with vertex finely and rather closely punctate, with a very narrow oblique supra-ocular impression on either side. Antennæ scarcely extending to the middle of the elytra, slender; second segment almost equal to the third, third to sixth slender and

almost equal in length, the following segments slightly thicker and scarcely longer. *Prothorax* about twice as broad as long, convex, lateral margins straight; surface crowded with fine punctures at the sides, somewhat less closely punctate in the middle; the basal margin with no impressed channel; in some examples a very fine granulation can be seen under a high power. *Scutellum* small, triangular, impunctate. *Elytra* subcylindrical, slightly widened at the middle, not depressed at the base, punctate-striate, each elytron having eleven rows, including a short scutellar row and an extreme marginal row; near the short scutellar row are some irregularly-placed extra punctures; elytral punctures much longer than those on the pronotum; intervals flat and impunctate, but those towards the lateral margins tend to become costate. *Underside*: breast and abdomen finely punctate.

Length, $2\frac{1}{2}$ mm.

BOMBAY: Khandesh (*T. R. Bell*).

Type in the British Museum.

The three following species are recorded here for the sake of completeness. The descriptions are free translations from the original Latin and French. No attempt has been made to incorporate these forms in the key on p. 203.

Chætocnema nigrica, *Motschulsky*.

Tlanoma nigrica, Motsch., Etud. Ent. vii, 1858, p. 106.

Body short, ovate, subconvex; shining, black, upper side subæneous, the basal segments of the antennæ, the tibiæ, and tarsi brown.

Head subrotund, truncate in front, impressed with a transverse line in the interocular space; interantennal elevation cuneiform and subcarinate; eyes large, subprominent; labrum transverse, sinuate in the middle. *Prothorax* broader than long, somewhat narrowed in front, basal margin slightly produced in the middle, anterior angles subacute, posterior angles rounded, sides somewhat rounded; surface extremely sparsely and finely punctate, almost glabrous, shining, margined. *Scutellum* triangular, impunctate. *Elytra* somewhat broader than prothorax, deeply punctate-striate; interstices flat, impunctate, humerus distinct. *Underside* shining, impressed with some punctures; first segment of tarsi triangularly elongate, third segment bilobed.

Length, $\frac{2}{3}$–$\frac{3}{4}$ l.; *breadth*, $\frac{2}{5}$–$\frac{1}{2}$ l.

BURMA.

Smaller and blacker on the underside than *Tlanoma dentipes*, with the elytra proportionately shorter and the humeral angles a little more distinct.

Chætocnema puncticollis, *Motschulsky.*

Chætocnema puncticollis, Motsch., Etud. Ent. vii, 1858, p. 107.

Another Indian species more related to our [European] *Tlan. concinna*, Marsh., is my *Tlan. puncticollis.* It resembles the first-named in form and shape, but its pronotum is more rectangular, more transverse, scarcely narrowed towards the head; the last-named character accentuates the anterior lateral angles of the prothorax; the pronotal punctuation is stronger and closer, while the punctures on the elytral striæ, on the contrary, are somewhat finer.

[Exact measurements and locality not stated.]

Chætocnema gracilis, *Motschulsky.*

Tlanoma gracilis, Motsch., Etud. Ent. vii, 1858, p. 107.

A third species from the same country [India] is one-half smaller, with the prothorax rectangular but more appreciably produced towards the scutellum; the anterior lateral angles of the prothorax are prominently extended, the sides more rounded. The humeral angles of the elytra are more rounded than in the preceding species.

[Exact measurements and locality not stated.]

Genus **PODONTIA**, *Dalman.*

Podontia, Dalman, Ephemerides Entomologicæ, 1824, p. 23; Chapuis, Gen. Col. xi, 1875, p. 29.

Genotype, *Chrysomela lutea*, Oliv., 1790 (*Galleruca grandis*, Gröndal, 1808).

Insects usually of large and massive build, broad, oblong; the largest representatives of this group from our regions. *Head* as broad as the deep emargination of the front margin of the prothorax, vertex not very convex, often more or less flat; surface generally very uneven, with a deep rounded impression on either side above the eye and continuing round the base of the antenna, these two impressions producing a longitudinal elevation in the interantennal space; labrum short, broader than long; maxillary palpi somewhat large, second and third segments more or less conical, fourth oval and a little shorter than the preceding segment; eyes convex, very often their bases seem raised owing to the depression round them. Antennæ short, only extending to the humerus of the elytra and, relative to the massive build of the insect, slender; the four basal segments always different from the next seven, which are somewhat thicker, opaque and pubescent, and generally more or less nearly equal. *Prothorax* broader than long, anterior margin deeply emarginate, posterior

sinuate with a median lobe, sides straight from the base to beyond the middle, where they bend inwards, the prothorax being thus narrowed in front; anterior lateral angles produced, the posterior angles are right angles, although they may be rounded or slightly drawn out; surface always uneven, with depressions and elevations; margins all round often thickened and rounded. *Scutellum* small compared to the large size of the body, triangular. *Elytra* broader than prothorax, parallel-sided, rounded at apex; surface smooth, each elytron with eleven very regular longitudinal rows of punctures, including a scutellar and an extreme marginal row; interstices smooth and flat, that between the extreme marginal row and the row next within it broader than the others; epipleura broad at base, narrowing considerably to the apex. *Underside*: prosternum broadened in front, elevated between the coxæ, longitudinally channelled, dilated and triangularly excised behind, the apex of the mesosternum fitting into it; anterior coxal cavities closed behind; mesosternum very short with hind margin rounded and excised to receive the front of the metasternum. Legs comparatively short and robust; anterior tibiæ somewhat dilated at the apex, but not emarginate; middle tibiæ distinctly dilated at the apex, where they are channelled on the outer side, the apex with a small sharp spinule underneath; posterior femora dilated more than the other femora, but not so much as in some other genera of the HALTICINÆ, channelled on the underside and having a dentiform expansion about the middle; posterior tibiæ longer than the anterior or middle tibiæ, strongly dilated and channelled on the outer side towards the apex, the margins of the channel being densely covered with cilia-like hairs, the external margin raised into an angle at its beginning, the extreme apex furnished at the outer corner with a small sharp spinule; tarsi large, first segment well developed, second small, third very large, bilobed, fourth long, extending much beyond the bilobed segment, and ending in two strong bifid claws; the smaller member of each claw is on the inner side.

The secondary sexual characters in this genus are as follows: in the male (1) the first segment of the anterior and middle tarsi is dilated and convex, (2) the posterior border of the last abdominal sternite has a deep and narrow emargination on each side; in the female (1) the first segment of the anterior and middle tarsi is triangular but not so dilated towards the base, (2) the posterior border of the last abdominal sternite is not emarginate at all, (3) the dentiform expansion about the middle of the posterior femora is not so accentuated as in the male.

This is a very homogeneous genus, the species of which are easily distinguishable by their colour-characters.

Range. China. Indo-China. Burma. Malay Peninsula, Java, Sumatra, Philippines. Celebes, New Guinea, Australia.

Key to the Species.

1. Upper side of one uniform colour, without markings..............	2.
Upper side with markings	4.
2. Upper side uniform yellow-brown ..	*P. lutea*, Oliv., p. 222.
Upper side deep chestnut-red	3.
3. Underside black..................	*P. rufocastanea*, Baly, p. 223.
Underside yellow	*P. pitalohita*, sp. n., p. 224.
4. Elytra chequered, irrorated or speckled with black or deep pitch-brown on a brown background ..	*P. congregata*, Baly, p. 224.
Elytra with black spots and patches on a brown background	5.
5. The two elytra together have fourteen black spots, some of which fuse and form bands across each elytron; in some varieties these bands are very broad and the colour pitch-brown.	*P. quatuordecimpunctata*, L., [p. 225.
The two elytra together have ten black spots, some of which by fusing often form one band across the middle of each elytron	*P. affinis*, Grönd., p. 227.

158. **Podontia lutea**, *Olivier*.

Chrysomela lutea, Oliv., Encyclopédie Méthodique, v, 1790, p. 692; id., Entomologie, 1807, p. 539, pl. 1, fig. 13.
Galleruca grandis, Gröndal in Schönherr's Synonymia Insectorum, i, 2, 1808, p. 288.

Form of the body as stated under the genus. Colour shining yellow-brown; tibiæ, tarsi, and the seven apical segments of the antennæ black; femora slightly tinged with red.

Head with vertex somewhat convex, the fine longitudinal impression in some cases absent; surface extremely finely and sparsely punctate, and sometimes the extremely fine superficial granulation produces a dullness. Other structures, including the antennæ, are as stated under the genus. *Prothorax* of the form described under the genus; surface apparently impunctate, but in certain lights it is seen to be extremely minutely and sparsely punctate; it also presents an extremely fine granulation; the depression on either side of the middle part of the disc is sometimes very deep, while, external and somewhat posterior to each of these depressions, there is on either side another small one, the two together in some cases producing a large ill-defined excavation; in front of the basal median lobe is a smaller depression. *Scutellum* small, impunctate. *Elytra* in shape and punctuation as described under the genus; the marginal broad nterstice is somewhat raised, more so towards the apex. *Under-* finely and thinly pubescent.

Length, 13–15½ mm.; *breadth*, 7½–8¾ mm.

BURMA: Kalaw, 4300 ft., 4. v. 1918 (*A. G. R.*, Pusa Coll.). CHINA: Macao (*F. W. Terry*). INDO-CHINA: Tonkin, Hoabinh, viii. 1918, and Tien Su, 4. v. 1917 (*R. Vitalis de Salvaza*). FORMOSA: Horisha, v.–viii. 1918 (*H. Kawamaru*).

In the original description the locality mentioned is "EAST INDIES," a very vague expression which implies that the insect came from the East and does not necessarily mean India. I find no authentic record to show that the insect occurs in India proper.

Type presumably in the Paris Museum.

159. Podontia rufocastanea, *Baly*.

Podontia rufocastanea, Baly, Ann. & Mag. Nat. Hist. (3) xvi, 1865, p. 405.

Body broad, oblong. Colour shining deep chocolate- or chestnut-red; underside (that of the prothorax excepted), legs, and the seven apical segments of the antennæ, black.

Head with vertex somewhat convex, impunctate and with a faint longitudinal median impression; there is a deep channel above each eye, this channel being continued into the interantennal space; the latter space contains a broad longitudinal raised area. Antennæ extending to a little distance beyond the base of the pronotum; the first four segments shining, the rest opaque, pubescent; first segment long, club-shaped, second small, shorter than third, fourth equal to third; from the fifth to the end the segments are more or less nearly equal. *Prothorax* broader than long (length three, breadth five, millimetres in the example measured), its shape as described under the genus; surface uneven, but smooth, and apparently impunctate; at certain angles, however, extremely fine and scattered punctures are visible, at least in the type-specimen; on either side of the middle of the disc there is a depression which may be deep or shallow, large or small, and other small depressions may be present in individual specimens, mostly towards the base or sides, the species presenting a good deal of variation in this respect. *Scutellum* shaped as described under the genus, impunctate. *Elytra*: form and other characters as is normal in this genus; the punctures of the rows are fine, the last and broadest interstices somewhat raised, more so towards the apex. *Underside*: abdominal sternites finely pubescent.

Length, $13\frac{1}{4}$–$13\frac{1}{2}$ mm.; *breadth*, $7\frac{1}{2}$–$7\frac{3}{4}$ mm.

The type-specimen is labelled merely "INDIA." Other examples are from ASSAM (*W. F. Badgley*); Khasi Hills, Shillong, xi. 1916 and viii.–x. 1919 (*Fletcher*, Pusa Coll.); N. Khasi Hills (*Godwin-Austen*, Indian Museum).

Type in the British Museum.

160. **Podontia pitalohita** *, sp. nov.

In general appearance and most of the characters strongly resembling *P. rufocastanea*. Elytra shining chocolate-red, the rest of the body yellow-brown with some parts, such as the pronotum and femora, tinged with red.

Head with the longitudinal median impression deeper, the channels round the bases of the antennæ deep, and a little area along these channels bearing some fine punctures. Antennæ comparatively long, extending somewhat beyond the humeral callus, more slender than in other species; first segment long and club-shaped, second small, shorter than third, fourth about equal to the preceding segment, the following segments opaque and not more thickened. *Prothorax*: form as described under the genus; surface somewhat dull (probably due to the extremely fine granulation which can be seen under a high power), apparently impunctate, but at certain angles extremely fine and scattered punctures are visible; the lateral margins thickened and rounded, with a row of punctures along them; there are three depressions, one on each side of the middle part of the disc and a third, which is small, in the middle in front of the base. *Scutellum* small, impunctate. *Elytra* as described under the genus; the broad marginal interstices are raised, while a little behind the humerus on each side the surface is depressed: the punctures of the rows are more accentuated than in other species. *Underside* finely pubescent.

Length, 11¾ mm.; *breadth*, slightly less than 7 mm.

ASSAM: Sylhet (Bowring Coll.). Described from one example.

Type in the British Museum.

161. **Podontia congregata**, *Baly*.

Podontia congregata, Baly, Ann. & Mag. Nat. Hist. (3) xvi, 1865, p. 405.

Body shaped as is usual in this genus. Colour shining red-brown; elytra with a lighter background showing darker irrorations along the suture and margins; these irrorations vary from red-brown to pitch-brown or almost black, in the latter case the pronotum and the underside share the same colour; the sutural band of irrorations is twice constricted, once at the middle and again near the apex; the whole elytra may be completely covered with irrorations, but in this case the latter are more or less obsolete towards the apex (this variety is shown in fig. 81).

This species conforms to the type of structure described under the genus. The posterior lateral angles of the prothorax are somewhat drawn out; the surface of the pronotum has the impressions and depressions arranged in a similar way to that of

* Sanskrit, "yellow-red."

P. affinis, with minor variations; the elytra and the underside call for no special remark.

Length, $11\frac{1}{2}$ mm.; *breadth*, $6\frac{1}{2}$ mm. These measurements are from the type; other examples before me measure $14\frac{3}{4}$ mm. in length and 8 mm. in breadth.

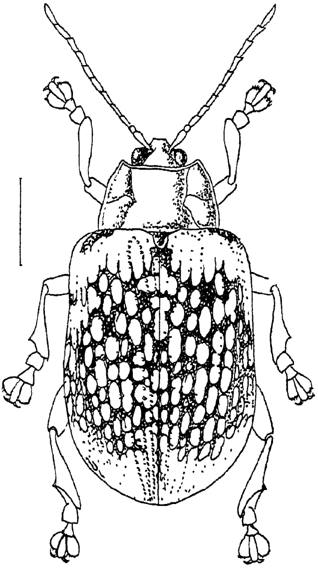

Fig. 81.—*Podontia congregata*, Baly

The locality of the type was unknown to Baly. Other material has been collected as follows: BOMBAY: Kanara (Jacoby Coll.). MALABAR (ex Coll. F. Moore). NILGIRI HILLS: (*G. F. Hampson*); Karteri Road, 4000–8000 ft., 27. viii. 1917 (*Naganath*, Pusa Coll.); Coonoor, 1500–2000 metres (about 4900–6500 ft.) 13–30. vi. 1901 (*M. Maindron*).

Type in the British Museum.

162. Podontia quatuordecimpunctata, *L.*

Chrysomela quatuordecimpunctata, L., Syst. Nat. ed. xii, 1767, p. 599; Fabr., Spec. Ins. i, 1781, p. 117; Ol., Ent. v, 1807, p. 539, pl. 4, fig. 42.

Podontia quatuordecimpunctata, Baly, Journ. of Ent. i, 1862, p. 451; Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 204; Stebbing, Indian Forest Insects, 1914, pp. 258–260.

In form and size this species resembles the type of the genus (*P. lutea*), and it is one of the largest HALTICINÆ from our regions.

160. **Podontia pitalohita** *, sp. nov.

In general appearance and most of the characters strongly resembling *P. rufocastanea.* Elytra shining chocolate-red, the rest of the body yellow-brown with some parts, such as the pronotum and femora, tinged with red.

Head with the longitudinal median impression deeper, the channels round the bases of the antennæ deep, and a little area along these channels bearing some fine punctures. Antennæ comparatively long, extending somewhat beyond the humeral callus, more slender than in other species; first segment long and club-shaped, second small, shorter than third, fourth about equal to the preceding segment, the following segments opaque and not more thickened. *Prothorax*: form as described under the genus; surface somewhat dull (probably due to the extremely fine granulation which can be seen under a high power), apparently impunctate, but at certain angles extremely fine and scattered punctures are visible; the lateral margins thickened and rounded, with a row of punctures along them; there are three depressions, one on each side of the middle part of the disc and a third, which is small, in the middle in front of the base. *Scutellum* small, impunctate. *Elytra* as described under the genus; the broad marginal interstices are raised, while a little behind the humerus on each side the surface is depressed: the punctures of the rows are more accentuated than in other species. *Underside* finely pubescent.

Length, $11\frac{3}{4}$ mm.; *breadth*, slightly less than 7 mm.

ASSAM: Sylhet (Bowring Coll.). Described from one example.

Type in the British Museum.

161. **Podontia congregata**, *Baly.*

Podontia congregata, Baly, Ann. & Mag. Nat. Hist. (3) xvi, 1865, p. 405.

Body shaped as is usual in this genus. Colour shining red-brown; elytra with a lighter background showing darker irrorations along the suture and margins; these irrorations vary from red-brown to pitch-brown or almost black, in the latter case the pronotum and the underside share the same colour; the sutural band of irrorations is twice constricted, once at the middle and again near the apex; the whole elytra may be completely covered with irrorations, but in this case the latter are more or less obsolete towards the apex (this variety is shown in fig. 81).

This species conforms to the type of structure described under the genus. The posterior lateral angles of the prothorax are somewhat drawn out; the surface of the pronotum has the impressions and depressions arranged in a similar way to that of

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* Sanskrit, "yellow-red."

It has a wide distribution also beyond our faunistic limits and exhibits much variation in colour and markings. The general colour is brown, which varies from a lighter to a much deeper shade, the latter being almost a dark red; in some cases the elytra are lighter than the pronotum or the underside. On the elytra are the following black spots and patches: (i) two spots on the suture, one behind the scutellum and the other near the apex, each of these being common to the two elytra, and the apical one always the larger of the two; (ii) on each elytron, in a line parallel to the suture and close to it, two large patches; (iii) in a line commencing from the humerus and parallel to the lateral margin there are usually four patches, but in many specimens six (presumably in the examples from which the original description was drawn up there were only four)—the first is a large roundish patch covering the humerus, the second a small spot (usually absent) on the margin a little behind and below the humerus, further back is the third spot, also smaller than the fourth patch, which latter is situated next to it (and on a level with the second of the two in the inner series); the fifth lies on the bend where the margin of the elytron curves in towards the apex, and the sixth is a small streak staining the apical angle, and absent in some specimens. This pattern of the markings is very variable, as is also their colour, and it seems that the varieties tend to be fixed in particular localities. In five examples from Wellesley Province, Federated Malay States (British Museum), the spots are reduced in number; in the lateral marginal line six spots are present, but that on the apical angle coalesces with the apical one of the two spots on the suture, and is also sometimes joined by a streak to the fifth spot of the lateral marginal series. In thirteen examples from Burma the patches are generally much enlarged and have coalesced to form a lateral band, but not to such an extent as to obliterate completely the original plan; the humeral patch is fused with the first patch of the subsutural series, and the first common sutural spot is also sometimes joined to these two fused spots by two oblique streaks; the second patch of the subsutural series is enlarged and fused with the fourth of the marginal series, the band so formed sometimes attaining very great breadth; the fifth and sixth spots of the marginal series and the second apical sutural patch (common to the two elytra) are all three fused; this pattern, derived from the original plan, is fairly constant, showing slight variations within itself; the colour of the spots and patches is dark red-brown and not black. In ten examples from the Andaman Islands the spots have a tendency to broaden and fuse in a similar way as in the Burmese specimens, but not to the same extent, and their colour remains black. In one specimen from Assam, in which the second patch of the subsutural series and the fifth of the marginal series have fused, there is a long black band along the margins from the humerus to the apex.

In structure this species closely resembles the form described

as typical of the genus. The broad marginal interstice is raised throughout.

Length, 12–16½ mm.; *breadth*, 6¼–9½ mm.

SIKKIM: Rungbong Valley, Gopaldhara (*H. Stevens*). ASSAM (*W. F. Badgley*); Khasi Hills, Nongpoh, 3000–5000 ft., vi. 1905 (Pusa Coll.); Patkai Mts. (*Doherty*); Sylhet. BURMA: Rangoon, vii. 1886 (*Fea*); Pegu (*Atkinson*); Bassein; Bhamo (*Fea*). ANDAMAN Is. (*Roepstorff*). MALAY STATES: Penang; Wellesley Province (*H. N. Ridley*). CAMBODIA.

Location of *type* unknown to me.

For an account of the immature stages and habits of this species see p. 102.

163. **Podontia affinis**, *Gröndal.*

Galleruca affinis, Gröndal, in Schönherr, Syn. Ins. i, 2, 1808, p. 289.
Podontia affinis, Sturm, Cat. Käfer-Sammlung, 1843, p. 286; Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 204.
Podontia impressicollis, Sturm, Cat. Insecten-Sammlung, 1826, p. 185.

Somewhat smaller than the type of the genus. Colour of elytra shiny brown; pronotum and underside darker shining red-brown. There are ten black spots and patches on the elytra, disposed as follows:—(i) two sutural spots, each common to both elytra, one roughly pear-shaped, varying in size, behind the scutellum, and a second, more or less round, near the apex; (ii) on each elytron a round spot covering the humerus; (iii) lying in a median transverse line, two patches which often coalesce to form a band across the elytron; (iv) the last is a roundish spot nearer the margin, on a level with the second sutural spot. These spots vary in size to some extent; while the apical sutural angles and the whole lateral margin are narrowly stained red-brown.

Head as described under the genus, the longitudinal vertical impression and the preocular and interantennal impressions very deep, making the front of the head look considerably rough. The antennæ call for no detailed description. *Prothorax* of the form characteristic of the genus; surface with strong impressions and excavations; two impressions and excavations along the median longitudinal line, while external to these on either side runs a longitudinal impression extending from the front margin and curving inward till it falls into an excavation, outside which is another smaller excavation, bounded on its outer side by a strong ridge; perpendicular to the basal margin, and midway between the median lobe and the hind angle, there is on either side another deep short impression. *Scutellum* small, narrow, impunctate. *Elytra* as described under the genus, the broad marginal interstice raised. *Underside* thinly and finely pubescent.

Length, 11 mm.; *breadth*, 6 mm.

SIKKIM: Mungphu (*Atkinson*). ASSAM: Khasi Hills, Nongpoh, vii. 1907 (*D. Nowrojee*, Pusa Coll.). BURMA: Momeik (*Doherty*); Bhamo (*Fea*). TENASSERIM: Thagata. TONKIN: Hoabinh, viii. 1918 (*R. Vitalis de Salvaza*). The type-locality is JAVA, and the species has evidently a wide distribution.

Type of *P. impressicollis* in Sturm's Collection; the location of that of *affinis* is unknown to me.

Genus OPHRIDA, *Chapuis*.

Ophrida, Chapuis, Gen. Col. xi, 1875, p. 31.

GENOTYPE, *Ophrida guttata*, Chap. (Malacca).

The difference between this genus and *Podontia* lies in (1) the somewhat smaller size of the insects belonging to the former, (2) the surface of the pronotum being much smoother in *Ophrida*, and (3) the structure of the prosternum, which in *Podontia* is triangularly cut or depressed at the hind end, so that the mesosternum in repose fits into it, while in *Ophrida* this end of the prosternum is truncate, the edge being straight (see fig. 82).

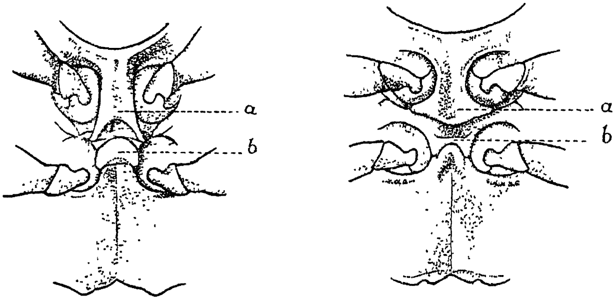

Fig. 82.—Part of the underside of (on the left) *Podontia* sp. and (on the right) *Ophrida* sp., showing parts of the pro-, meso- and metasterna and the bases of the first two pairs of legs: *a*, intercoxal process of prosternum; *b*, mesosternum.

Body in many species somewhat narrowed behind. *Head* broad, fitting into the emargination of the front margin of the pronotum, somewhat convex between the eyes; the frontal elevations are obsolete, and generally there is a narrow impression round the base of either antenna; eyes moderately convex, more or less oval. Antennæ short, extending very little beyond the humerus; the three basal segments shining, the rest pubescent; first segment the longest and club-shaped, second small, always much shorter than third, the following segments more or less nearly equal to each other and cylindrical. *Prothorax* much

broader than long, front margin widely emarginate, basal margin sinuate, with a slight median lobe which in some species is not prominent, sides straight at the base, then slightly bulging out and abruptly curved in again; anterior and posterior angles acute in the type-species, but in some species they may be rounded; surface somewhat convex, obsoletely impressed in the type-species, but in other species the impressions are more marked. *Scutellum* somewhat broad, triangular with apex rounded. *Elytra* slightly broader at base than prothorax, sides more or less nearly parallel, in some species somewhat narrowed towards the apex; each elytron with eleven regular longitudinal rows of punctures, including a scutellar and an extreme marginal row; interstices usually flat, except the last, *i. e.*, that between the extreme marginal row and the row next to it, which is broader than the others; in some species the other interstices are also somewhat raised. *Underside* generally thinly covered with fine hairs; legs more or less robust; front tibia feebly dilated at the apex and ridged on the outer side; middle tibia similarly ridged, a little more dilated at the apex, where it is excavated, the sides of the excavation being raised into a pointed angle at a little distance from the apex; hind femora strongly incrassate, oval, channelled on the underside; hind tibiæ longer than the front or middle tibiæ, gradually dilated towards the extremity, ridged on either side for three-quarters of their length, excavated on the last quarter (measuring from the extremity), the borders of the excavation densely lined with cilia-like hairs; on the outer side the excavation is raised into an angle at its commencement; the extremity of the tibia is truncate, the external lobe of the truncate end simple, the internal lobe furnished with an acute spine, while between the two lobes there is a bent spur; tarsi robust, first segment long and triangular, second very short, third twice as broad, bilobed, fourth projecting beyond the bilobed segment and terminated by bifid claws.

The secondary sexual characters are similar to those stated under the genus *Podontia*, i. e., in the male the first segment of the anterior tarsus is dilated and convex and the last ventral segment of the abdomen is notched on each side.

Range. China, India, Sumatra, Malacca, Australia.

Key to the Species.

1. Body very hairy, with rows of silvery hairs along the longitudinal series of punctures on the elytra	*O. hirsuta*, Stebbing, [p. 230.
Body without hairs on the upper side . .	2.
2. Elytra chequered, irrorated or speckled with red-brown and dull yellow, the irrorations sometimes forming indistinct oblique bands on the elytra	*O. marmorea*, Wied., [p. 231.
Elytra with yellow spots on a red-brown background	3.

3. Yellow spots, approximately 38 in number, are present on the alternate interspaces on the inner part of the elytral surface .... *O. flavopustulata*, Baly, [p. 232.
Yellow spots, approximately 93 in number, are present on all the interspaces of the elytra .... *O. binduta*, sp. n., p. 233.

164. **Ophrida hirsuta**, *Stebbing.*

Blepharida hirsuta, Jacoby MS.; Stebbing, Indian Forest Insects, 1914, p. 260.

Body oblong, narrowed behind. General colour yellow with red-brown mottling on the elytra; the yellow colour may be darker in some specimens, in which also the mottlings are correspondingly darker; several somewhat irregularly arranged transverse bands of the mottlings can be recognized; the colour is much darker along the side-margins of the prothorax and the scutellum is dark red-brown; on the underside in some cases the front and middle legs are paler than other parts. The whole insect is covered with fine silvery pubescence; on the elytra the fine hairs arise from the rows of punctures.

Head: vertex not convex, and having a median longitudinal impression; the channels round the eyes and the bases of the antennæ are present, but rendered indistinct owing to the presence of hairs; eyes rather large and black. Antennæ extending a little beyond the humeral callus; their structure calls for no specific comment. *Prothorax* about twice as broad as long (length one and a half, breadth three, millimetres); sides straighter at the base and uniformly rounded and narrowed in front, in this differing from the generic type; anterior lateral angles not produced, somewhat rounded, posterior lateral angles almost right angles, basal margin slightly sinuate; surface uneven, although the basal depressions are not so pronounced as in other species, minutely and closely punctate, the punctures being seen with difficulty owing to the hairs; along the lateral margins the punctures are large and confluent. *Scutellum* also hairy. *Elytra* broader than prothorax, each with eleven very regular rows of punctures; all the interstices are somewhat raised throughout, and in this the insect differs from the genotype. *Underside* as stated under the genus.

Length, 7½–8 mm.; *breadth*, 3½–4 mm. According to Stebbing the length may be 15 mm., but none of the specimens before me, which were collected by him, reach that length.

Bombay: Poona, Bhamburda Reserve (Forest Department), vii–viii. 1901 (*Stebbing*). The insects were defoliating *Boswellia serrata*, Roxb. (Natural Order Burseraceæ); this plant is of economic importance, being a source of timber and of a resinous gum (Indian name *gugul*), used as frankincense.

Type in the British Museum. In that institution there are two

insects collected by Captain Boys in the twenties or thirties of the nineteenth century, labelled only "E. India, Boys"; one of these insects is marked "type" and labelled in Jacoby's handwriting "*Blepharida hirsuta*," but I am unable to trace any published description of it by Jacoby. In 1901 Stebbing collected several specimens from Poona, which were identified in the British Museum as *Blepharida hirsuta*, Jacoby; and in 1914 Stebbing published a short description of the insect (*loc. cit.*) without knowing that Jacoby's name was a manuscript name. I have no doubt that Stebbing's insects from Poona are the same species as those of Boys which bear Jacoby's MS. name, and according to rule the authorship of this species must be ascribed to Stebbing. But I think it should be placed in *Ophrida* at present, although it is possible that it may be made the type of a new genus, considering the somewhat different shape of its prothorax, the presence of costæ on the elytral interstices, and the complete hairiness of the body. Without more material I do not, however, propose to erect a new genus. From amongst Stebbing's specimen's in the British Museum I have selected a good one as the type of this species.

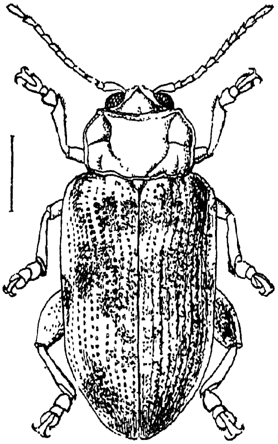

Fig. 83.—*Ophrida marmorea*, Wied.

165. **Ophrida marmorea**, *Wiedemann.*

Haltica marmorea, Wied., Zool. Mag. i, 3, 1819, p. 181.
Podontia mouhoti, Baly, Trans. Ent. Soc. Lond. (3) ii, 1865, p. 431.

Body oblong, somewhat narrowed behind. General colour dark red-brown; elytra mottled with yellow, or sometimes the yellow colour predominates and forms the background, in which

case the mottling is red-brown; an indistinct arrangement in oblique bands across each elytron may be recognised, and the centres of the punctures are always deep red-brown.

Head with vertex extremely minutely punctate; the channels round the eyes are deep. Antennæ usually formed as is normal in the genus, but in some examples the fourth segment appears to be somewhat longer than the third; from the fifth the segments are slightly more thickened; the first segment is always thickened and club-shaped. *Prothorax*: form as stated in the description of the genus; surface uneven, the lateral depressions varying considerably; on either side, perpendicular to the front margin, is a long deep impression, and at right angles to it, lying transversely almost at the middle of the length, is another impression extending to the lateral margin; often this latter impression is full of deep punctures, while sometimes it is quite obsolete; opposite to the long impression perpendicular to the front margin, and a little external to it, there is on either side a short and deep impression perpendicular to the basal margin; the basal part of the surface crowded with deep punctures. *Scutellum* smooth, impunctate. *Elytra* as described under the genus; interstices flat, except towards the base, where they appear to be somewhat raised. *Underside* covered with fine hairs.

Length, 10½ mm.; *breadth*, 5½ mm.

BENGAL: (type-locality); Buxa, Duars, v. 1907 (*D. Nowrojee*, Pusa Coll.). UNITED PROVINCES: Jolikote, 9. v. 1915, on cherry (Pusa Coll.); Kumaon, Tanakpur (*H. G. Champion*). ASSAM: Naga Hills (*Captain Butler*). BURMA: Lashis, 5. iv. 1918 (*A. G. R.*, Pusa Coll.); Maymyo, v. 1910 (*H. L. Andrewes*); Bhamo, viii. 1885 (*L. Fea*); Rangoon, Magai Forest, ii. 1905 (*Stebbing*), defoliating *Holarrhina antidysenterica*. NILGIRI HILLS (*G. F. Hampson*); Madura. JAVA. SIAM: Laos (type-locality of *P. mouhoti*); Koh Si Chang, iv. 1919 (*E. W. Trotter*).

Type and another original example in the Copenhagen Museum (*teste* Kai L. Henriksen, *in litt.*, xi. 1925).

166. Ophrida flavopustulata, *Baly*.

Blepharida flavopustulata, Baly, Cist. Ent. ii. 1879, p. 441.

Body ovate, somewhat narrowed behind. Colour shining red-brown; labrum, tarsi and many small roundish spots on the elytra, arranged in longitudinal lines on the interstices, yellow; breast black; apices of mandibles pitchy-blackish. The yellow spots on the elytra are not arranged according to any very regular pattern; they are about thirty-eight in number: roughly speaking, there is a longitudinal row along the sutural interspace, then on alternate interspaces there are two more rows, the spots in each of these rows being placed at some distance one from the other; then, after an interval of two interspaces, there are spots along the three marginal interspaces, situated in basal, median,

postmedian and apical groups; there are also a few spots, some of which are elongate, at the base of each elytron.

Head: vertex with round punctures; face between the eyes impressed on either side with an ill-defined, coarsely punctured, oblique channel; clypeus coarsely punctate. Antennæ as stated in the description of the genus. *Prothorax* in the type-specimen four millimetres broad, and two millimetres long in the middle (Baly gives three times as broad as long in his original description, which was drawn up from the then unique type-specimen); sides of the form usual in this genus; anterior angles slightly produced and curved outwards, posterior angles somewhat produced and acute; surface irregularly excavated at the sides, impressed with large deep punctures, which are rather crowded at the base and which form irregular rows at the sides, remainder of the surface finely punctate. *Scutellum* of the form usual in the genus. *Elytra* with interspaces distantly impressed with very minute punctures.

Length, $8\frac{1}{2}$–10 mm.; *breadth*, $4\frac{1}{2}$–$5\frac{1}{2}$ mm.

ASSAM: "The Hills" (type-locality). This species was described from one example collected by A. W. Chennell in his travels in Assam. Since then other specimens are forthcoming, with a more accurate record of locality, namely: Khasi Hills (*Godwin-Austen*).

Baly placed this species in the allied genus *Blepharida*, which was erected by Rogers (Proc. Ac. Phil. viii, 1856, p. 29) for an American species. I have not seen the genotype of *Blepharida*. In placing the present species in *Ophrida* I have followed Chapuis, who drew up a statement of the distinctions between the three genera *Podontia*, *Ophrida*, and *Blepharida*, based on their anatomy, especially the relations between the pro- and mesosterna. If Chapuis's arrangement is followed, the present species falls in the genus *Ophrida*.

167. Ophrida binduta *, sp. nov.

Body oblong-ovate. Colour dark red-brown, with numerous yellow spots on the elytra; these are present on all the interspaces and number about ninety-three; breast, tibiæ, posterior femora (except part of the upper side) black; apices of mandibles blackish-pitchy; antennæ piceous, especially the apical segments.

Head with vertex not very convex, with one or two punctures near the eyes, and the rest of the surface of the vertex extremely minutely punctate; the channels round the eyes are deep and lined with punctures. Antennæ constructed as described under the genus. *Prothorax* with anterior angles somewhat roundly produced, the posterior more or less right angles; surface uneven, with the lateral depressions not very deep and containing punctures, while there are a few similar punctures towards the

* Sanskrit, "spotted."

base, and besides these the whole surface is covered with extremely minute punctures. *Scutellum* smooth, impunctate. The *elytra* and *underside* call for no special remark.

Length, $9\frac{1}{8}$–10 mm.; *breadth*, $5\frac{1}{2}$–$5\frac{3}{4}$ mm.

Assam (*W. F. Badgley*); Shillong, 11. vi. 1918, 2 examples (*T. R. Rao*, Pusa Coll.).

Type in the British Museum. Described from three examples.

Genus **CREPIDODERA**, *Chevrolat*.

Crepidodera Chevr., in D'Orbigny, Dict. Univ. Hist. Nat. iv, 1844, p. 441; Chapuis, Gen. Col. xi, 1875, p. 53.

Genotype, *Chrysomela nitidula*, L. (Europe).

Chevrolat founded this genus on the presence, in front of the basal line of the pronotum, of a transverse impression, bounded on each side by a raised fold. He, moreover, cited many Linnean and Fabrician species, including them in this genus. At present the presence of the four following characters in a beetle of this group will distinguish it from all the other genera: (1) the thickened hind femora, (2) the closed anterior coxal cavities, (3) the fact that the coxæ are only slightly distant, (4) the antebasal pronotal channel. These beetles are oval or oblong-oval; the Indian species are very small (one and a half or two millimetres in length). *Head* with front carinate or depressed. Antennæ generally long, more than half the length of the body, with the apical segments slightly thickened or, at any rate, not attenuated; first segment long, second oblong-oval, half the size of the first, third and fourth subequal; the following more elongated and gradually thickened; this is generally the structure, but it varies to a certain extent. *Prothorax* subquadrangular, somewhat broader than long, sides slightly rounded, lateral edges sometimes serrated; surface convex with a large and deep impression along the posterior margin, limited on either side by a small longitudinal depression *. *Scutellum* triangular. *Elytra* oblong or oval, moderately convex and more or less punctate-striate. *Underside*: prosternum moderately narrow, convex, depressed behind and produced so that, meeting the extensions of the epimera, it closes the anterior coxal cavities behind; posterior femora moderately thickened; posterior tibiæ sometimes more or less channelled or depressed and provided at the apex with an extremely small sharp curved spine; tarsal claws appendiculate.

Range. World-wide.

* These longitudinal impressions are absent in *C. minuta*, which, as stated below, is somewhat doubtfully placed in this genus.

Key to the Species.

1. Elytra and apex of antennæ black, the rest brown	*C. nigripennis*, Motsch., p. 237.
No such combination of colours . .	2.
2. Insect entirely yellow	*C. minuta*, Jac., p. 235.
Insect not entirely yellow	3.
3. Insect tawny brown, with the suture and lateral margins obscure fuscous	*C. obscurofasciata*, Jac., p. 236.
Insect with the elytra metallic-blue	*C. orientalis*, Jac., p. 236.

While it has been possible to include Motschulsky's species *nigripennis* in the above table, his species *affinis* is omitted owing to the inadequacy of the description and uncertainty as to its identity; remarks on it will be found on p. 237.

168. **Crepidodera minuta**, *Jacoby.*

Crepidodera minuta, Jac., Proc. Zool. Soc. Lond. 1887, p. 90.

Entirely brownish-yellow: antennæ, elytra, and legs paler; eyes black.

Head broad, impunctate, frontal elevations distinct though not very prominent. Antennæ about two-thirds the length of the body; first segment long and thickened, second equally thickened

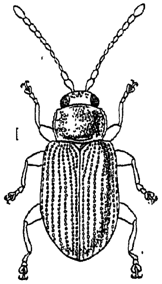

Fig. 84.—*Crepidodera minuta*, Jac.

but shorter, third, fourth, fifth and sixth thinner and almost equal in length; the seventh to the eleventh are thicker and equal in length, the last pointed. *Prothorax* slightly broader than long, somewhat narrowed at the hind angles, anterior and posterior margins more or less straight, all the angles rounded, the edges of the sides serrated; surface convex and deeply and closely punctate, antebasal impression moderately deep, almost as broad as the basal margin and not terminated on each side by a longitudinal impressed line (the absence of the longitudinal impressed lines is unusual in this genus). *Scutellum* small, broadly triangular, smooth and impunctate. *Elytra* somewhat broader at

base than prothorax, parallel-sided, narrowing towards the apex, with the humeri prominent; punctate-striate, each elytron having eleven rows of large deep punctures, the rows placed very close to each other. *Underside*: the distance from the mouth-parts to the front edge of the prosternum is considerable; the prosternum is rather narrow between the prominent anterior coxæ; anterior coxal cavities closed behind; mesosternum somewhat broad and punctate; metasternum much broader than long, with sides somewhat coarsely punctate; first abdominal sternite long; femora of all the legs equally thickened; the tibiæ not channelled; tarsi slender; claws appendiculate.

Length, $1\frac{1}{2}$ mm.

CEYLON: Dikoya, 3800–4200 ft., 21.i.–7.ii.1882 (*G. Lewis*).

Type in the British Museum. This species is included in *Crepidodera* with some reserve.

169. **Crepidodera obscurofasciata**, *Jacoby*.

Crepidodera obscurofasciata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 933.

Fulvous; elytra with the sutural and lateral margins obscure fuscous.

Head impunctate, shining, frontal elevations in the shape of narrow transverse ridges, carina indistinct. Antennæ scarcely extending to half the length of the elytra; second segment thickened, third and following segments thinner but not longer than second. *Prothorax* twice as broad as long, rather convex, sides straight at the base, rounded before the middle, the anterior angles slightly thickened but not produced; surface extremely finely punctate, basal sulcus rather shallow, punctate like the rest of the surface and bounded at either side by a longitudinal depression. *Elytra* gradually narrowed behind, finely but distinctly punctate-striate; the interstices flat and impressed each with a single row of minute punctures. *Underside*: prosternum narrow; anterior coxal cavities closed.

Length, $2\frac{1}{2}$ mm.

BURMA: Bhamo.

Type in the Genoa Museum.

I have not seen the insect. The above description is taken from Jacoby's original description.

170. **Crepidodera orientalis**, *Jacoby*.

Crepidodera orientalis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 933.

Parallel-sided. Head, thorax, the five basal segments of the antennæ, and the anterior legs fulvous; elytra metallic-blue; breast, abdomen, hind legs and the six apical segments of the antennæ, black.

Head impunctate; eyes large; frontal elevations obsolete and contiguous with the carina. Antennæ extending beyond half the length of the elytra; second segment thickened but scarcely shorter than third, terminal segments slightly thickened. *Prothorax* twice as broad as long, sides slightly rounded before the middle, angles rather obtuse; surface transversely convex, impunctate, base with a deep transverse sulcus, which is bounded at either side by a perpendicular groove. *Elytra* subcylindrical, closely and rather strongly punctate-striate; interstices finely and obsoletely wrinkled. *Underside*: anterior coxal cavities closed.

Length, 2½ mm.

BURMA: Karen Mts. (*Fea*).

Type in the Genoa Museum.

I have not seen this species, which Jacoby states that he described from a unique example.

171. Crepidodera nigripennis, *Motschulsky*.

Ochrosis nigripennis, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 418.

In the form of the body it resembles *Ochrosis salicariæ*, Payk.* (this insect occurs in the temperate regions of Europe), but it is smaller and with the elytra black. It is oblong-ovate, convex, and shining brown, the antennæ at the apex, the elytra, and the ventral surface of the body, black. The pronotum is transverse and smooth. The elytra are broader than the prothorax and three times longer, subovate and punctate-striate.

Length, 1¼ mm.

CEYLON: Nuwara Eliya Mts., 8000 ft.

I have not seen the type, and the above description is a translation from the original Latin diagnosis.

Crepidodera affinis, *Motschulsky*.

Crepidodera affinis, Motsch., Bull. Soc. Nat. Mosc. xxiv, 1851, part 1, no. 2, p. 665.

This insect was described by Motschulsky in the following words: "Also one species which resembles *Cr. transversa*, Marsh., but a little shorter." *C. transversa* is a European species, and is an entirely brown insect. The specimen which Motschulsky called *affinis* belonged to the East India Company, some of whose collections are in the British Museum. But *C. affinis* cannot be traced. Under the circumstances the name is omitted from the key and must be, to all intents, ignored.

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* = *Lythraria salicariæ*, Payk.

Genus ASUTOSHA *, gen. nov.

GENOTYPE, *Asutosha divarna*, sp. nov.

Body elongate-oblong. *Head* narrower than the prothorax, with eyes strongly convex. Antennæ situated close together with a deep furrow between them, and in length equal to more than three-quarters of the body: second and third segments very small, the latter being slightly longer than the former, while the fourth segment is the longest. *Prothorax* quadrate or slightly broader than long, very slightly narrowed behind; anterior and posterior angles produced, the apex of each bearing a fine hair; surface convex in front and depressed on either side of the longitudinal middle line, the depressions containing a few punctures. *Scutellum* elongate, triangular, with apex sharply pointed. *Elytra* much broader than the base of the prothorax, with humerus convex; surface regularly punctate-striate, and lateral margins slightly concavely explanate. *Underside*: front coxæ exserted and almost contiguous, thus making the prosternum very narrow, the coxal cavities being closed behind; elytral epipleura broader at the base, and continuing almost to the apex; legs rather long; posterior femora only moderately thickened; posterior tibiæ perfectly cylindrical, without channels and unarmed at the apex; posterior tarsal segments of normal structure; claws appendiculate.

Range. Burma.

172. Asutosha divarna †, sp. nov.

Body elongate-oblong. Colour of upper side dark brown to black; a large basal patch occupying nearly half of either elytron and a smaller apical patch, yellow; underside pitch-brown, some parts of the legs being darker than others. The large basal yellow patch on either elytron covers the humerus, reaches the basal margin, and, curving inwards, approaches the suture without actually attaining it; the yellow patch at the apex covers a small area and reaches the outer margin but not the suture. Of the two examples before me one is shining and the other opaque.

Head impunctate, with vertex convex and depressed in front, bases of the antennæ closely contiguous, clypeus convex. Antennæ long, slender, not thickened towards the apex, the three basal segments shining, the rest pubescent; basal segment elongate, club-shaped, second small, rounded, third almost equal to, or very slightly longer than, second, fourth very slightly longer than fifth, the latter and the sixth and seventh almost equal in length, the eighth, ninth, tenth, and eleventh similarly equal, the last truncate on the outer side and pointed. Mouth-parts exserted; labrum broad, narrow in front: penultimate segment of maxillary palpi

* Sanskrit, "easily pleased," a name of Siva.

† The Sanskrit equivalent of Latin *bicolor*.

thickened, apical segment minute, conical, pointed. *Prothorax* quadrate or slightly broader than long, narrow behind, anterior and posterior margins almost straight, lateral margins straight, their edge gently undulated ; the anterior lateral angles are slightly expanded and each bears a fine seta ; the posterior angles are slightly produced, each similarly bearing a fine seta ; surface convex in front, impunctate, each side depressed, the depressions containing a few scattered coarse punctures. *Scutellum* triangular with the three angles sharp ; surface impunctate. *Elytra* broader

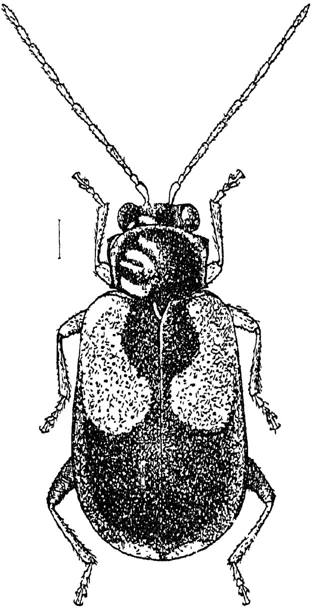

Fig. 85.—*Asutosha divarna*, Maulik.

at the base than the prothorax: each elytron has (1) a short scutellar row, (2) nine regular rows, of which the sixth, seventh, and eighth are closer together than the rest and arise below the humeral area, (3) an extreme marginal row of which the punctures are deeper and placed in the concave expansion of the lateral margin; the rows converge towards the apex; interstices smooth and flat; humeri impunctate. *Underside* impunctate, smooth, shining, sparsely covered with hairs.

Length, $5\frac{1}{4}$ mm.

Burma : Ruby Mines (*Doherty*).

Type in the British Museum. Described from two specimens.

Genus GOPALA *, gen. nov.

GENOTYPE, *Gopala pita*, sp. nov.

Body elongate. *Head* broad; mouth-parts exserted, penultimate segment of maxillary palpi incrassate, apical segment small, conical, and pointed; eyes convex; antennæ close together at the base; interantennal space narrow, with a ridge which is met by a deep longitudinal impression; vertex not very convex. Antennæ reaching a little distance beyond the middle of the elytra; second segment very small, third almost equal in length to the fourth and double the length of the second. *Prothorax* narrower than the base of the elytra, quadrate or only very slightly broader than long, somewhat narrowed behind, anterior angles rounded, posterior obtuse; in front of the basal margin are two transverse depressions, one on either side of the middle longitudinal line. *Scutellum* triangular with apex rounded. *Elytra* parallel-sided, imperfectly punctate-striate, with interstices confusedly and finely punctate; the punctures are deeper in the middle than on the basal and apical parts. *Underside*: epipleura of elytra broad at the base and considerably reduced behind the middle; anterior coxæ prominent, almost contiguous, making the prosternum very narrow; the anterior coxal cavities are really closed behind, although on a superficial examination they may seem to be open; posterior femora only very slightly more incrassate than the other femora: tibiæ cylindrical, without channels and unarmed at the apex; first segment of the posterior tarsi almost equal to the following two segments together: claws appendiculate; the abdominal segments are sparsely covered with hair, and on the last there are two elevated areas, each containing a deep longitudinal impression.

Range. Assam (Manipur).

173. Gopala pita,* sp. nov.

Pitch-black, with two yellow patches on each elytron, namely a broad, transverse, median band and a smaller apical patch; the transverse median band attains neither the suture nor the lateral margin.

Head with vertex not very convex, impunctate; interantennal carinæ expanded behind. Antennæ with the two basal segments smooth and hairless, the rest being covered with fine brownish pubescence; first segment long and club-shaped, second small and rounded, third and fourth almost equal, fifth slightly shorter than fourth and almost equal to each of the six following segments. *Prothorax* quadrate or very slightly broader than long, slightly narrowed behind, with anterior angles rounded and posterior obtuse, each of them bearing a fine seta; surface convex in front,

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* Sanskrit, meaning "cowherd," a name of Krishna.
† Sanskrit, "yellow."

impunctate, with two transverse, rather deep impressions, one on either side of the longitudinal middle line; basal edge slightly sinuate, front edge straight. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* much broader at base than prothorax; humeri strongly convex and impunctate; behind the scutellum is a shallow depression on the suture; the punctures on the yellow areas are much more pronounced than those on the

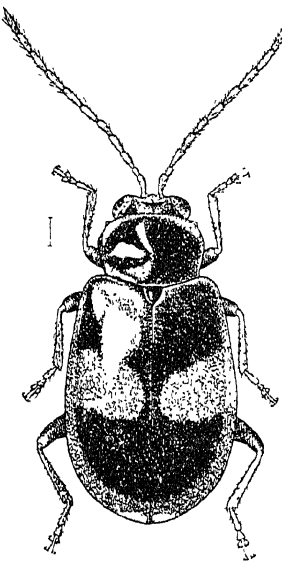

Fig. 86.—*Gopala pita*, Maulik.

black portions; the tendency to form rows, though very imperfect, is distinctly recognisable, and the punctures are of more than one kind, some being stronger than others. *Underside* impunctate, sparsely covered with hairs, more on the tibiæ and the abdominal sternites.

Length, 4 mm.

ASSAM: Manipur (*Doherty*).

Type in the British Museum. Described from one example.

Genus GRIVA *, gen. nov.

GENOTYPE, *Pseudodera cyanipennis*, Jacoby.

Body elongate. *Head* narrower than prothorax; mouth-parts exserted; interocular space rough; frontal elevations and carinæ between the bases of the antennæ pronounced. Antennæ short,

* Sanskrit, "neck."

extending to the base of the prothorax, with the six apical segments distinctly thickened. *Prothorax* apparently quadrate, but actually about one millimetre broader than long; the surface is extremely convex in front, while the transverse depression in front of the base is so shallow that in some aspects it can be hardly recognised; the transverse depression is bounded on either side by a deeply impressed short longitudinal line; anterior lateral angles rounded, the posterior angles being also more or less rounded; base gently sinuate. *Scutellum* triangular and insignificant. *Elytra* hardly broader at base than prothorax; the surface is smooth, flat and punctate-striate, the punctures being strong, but the rows not very regular. *Underside*: prosternum more or less broad with apex rounded; anterior coxal cavities closed behind; posterior femora strongly incrassate; all the tibiæ are cylindrical, with channels and apical spurs; tarsi with the claw-segment long; claws divaricate and appendiculate.

Range. India.

This genus differs from the next following genus, *Pseudodera*, in the form of the antennæ, the shallowness of the transverse impression before the base of the prothorax, the fact that the elytra are hardly broader at the base than the prothorax, and the partial irregularity of the seriate punctures on the elytra.

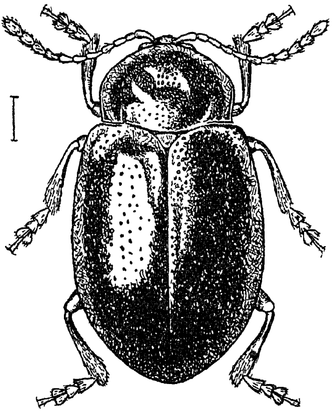

Fig. 87.—*Griva cyanipennis*, Jac.

174. **Griva cyanipennis**, *Jacoby.*

Pseudodera cyanipennis, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 122.

Body elongate, convex. Colour of head and underside bluish-black; breast and legs dark blue; abdomen more or less fulvous at the apex; antennæ black, with the basal segments fulvous at their apices; prothorax dark chestnut-brown, with the base

slightly stained with piceous; elytra metallic-blue; scutellum black.

Head with vertex impunctate, frontal tubercles small, interantennal carina raised. Antennæ rather short, extending to the base of the elytra only; third segment somewhat longer than second and almost equal to fourth, fifth slightly longer than fourth; the six terminal segments thickened and pubescent. *Prothorax* about one-half a millimetre broader than long, very convex: sides straight at the base, rounded in front, base with a very shallow transverse depression, bounded at either side by a deep, perpendicularly impressed, line; basal portion deeply but not closely punctate, middle of the upper surface with a broad longitudinal band of strong punctures, which does not reach the front margin. *Scutellum* broadly triangular, small. *Elytra* rather strongly punctate-striate, the rows somewhat irregular and closely placed near the suture, more regularly so at the sides, where a tendency to form double rows (like those found in the genus *Pseudodera*) can be recognised; intervals confusedly punctate. *Underside* sparsely covered with fine hairs, more thickly so on the abdominal sternites.

Length, 6 mm.

BENGAL: Mandar.

Type in the British Museum.

Genus **PSEUDODERA**, *Baly*.

Pseudodera, Baly, Journ. of Entomology, i, 1862, p. 200.

GENOTYPE, *Pseudodera xanthospila*, Baly (Northern China).

Body elongate, parallel-sided. *Head* narrower than prothorax, more or less constricted in front, with the mouth-parts exserted. Antennæ nearly as long as the body, with all the segments of almost the same thickness, the third being double the length of the second; interantennal elevations pronounced, with a deep impression between them. Eyes comparatively small, situated each on an elevated area. *Prothorax* broader than long, anterior margin almost straight, with the angles acute, posterior margin also almost straight, with the angles almost right angles, lateral margins rounded; surface convex, but in front of the basal margin is a transverse impression, which varies in length and depth, but is relatively deep; on each side of this impression is a short longitudinal impressed line, which also varies in like manner. *Scutellum* broadly triangular, with apex rounded. *Elytra* much broader at base than prothorax; surface smooth and flat, with eleven longitudinal rows of punctures, comprising a short scutellar row, a single sutural row followed by four pairs and an extreme marginal row. *Underside*: anterior coxal cavities closed behind; posterior femora moderately incrassate; all the tibiæ more or less cylindrical, without channels or spurs; tarsi with first segment

triangular, second less so, third broad and bilobed; the fourth or claw-segment is long and has two appendiculate and divaricate claws.

Range. China, Japan, India.

Key to the Species.

Head finely and sparsely punctate	*P. orientalis*, Baly, p. 244.
Head impunctate	*P. bifasciata*, Jac., p. 245.

175. **Pseudodera orientalis**, *Baly*.

Pseudodera orientalis, Baly, Trans. Ent. Soc. Lond. 1877, p. 286.

Body elongate and parallel-sided. Colour shining pitch-brown; antennæ black; legs obscure piceous; abdominal sternites reddish-brown; a broad transverse band across the elytra yellow-brown.

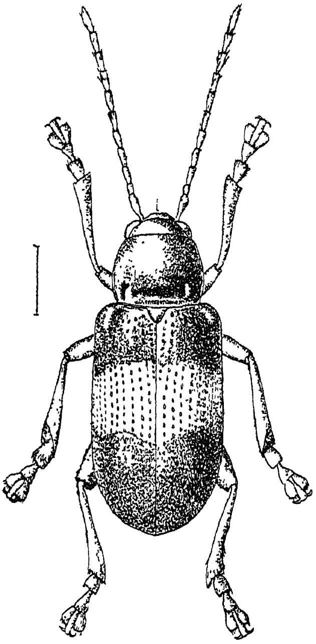

Fig. 88.—*Pseudodera orientalis*, Baly.

Head: vertex smooth, convex, very finely and sparsely punctate and separated from the front (including the eyes) by a deep transverse impression; eyes convex and hemispherical; there are two parallel carinæ between the antennæ, expanding into the frontal elevations immediately above and enclosing a deep channel between

them. Antennæ long, slender, sparsely hairy, passing considerably beyond the middle of the body; first segment long, club-shaped, second small, rounded, third, fourth, and fifth almost equal to each other; from the sixth onwards the segments become slightly shorter and opaque. *Prothorax* somewhat broader than long, but appearing as though quadrate, slightly narrowed at the base and broadening about the middle, where the sides are rounded, front and basal margins almost straight, anterior angles acute, posterior obtuse; surface convex, smooth and impunctate; at the base, within the hind angle on either side, is a very deep, short, longitudinal impression, and lying transversely along the middle between the two longitudinal impressions is a very deep depression, which contains two large pits and deeply impressed punctures, some of which latter coalesce. *Scutellum* broad, ovate, smooth and impunctate. *Elytra* broader at base than prothorax, with humeri elevated, convex, and impunctate; each elytron has a scutellar row of a few widely separated punctures and ten more regular rows, distributed as follows: first a single sutural row, then eight rows, more or less arranged in four pairs, and, lastly, a row along the extreme margin; interstices flat, the third and fifth, counting from the suture, slightly broader; there are a few stray punctures on the interstices, and the rows converge towards the apex. *Underside* thinly covered with bristly hairs; claws appendiculate.

Length, 9½ mm.; *breadth*, 4 mm.

BENGAL.

Type in the British Museum.

176. Pseudodera bifasciata, *Jacoby*.

Pseudodera bifasciata, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 200.

Body elongate, parallel-sided. Colour brown; head and antennæ darker brown, the latter sometimes piceous; elytra black at the base, with a broad pale brown band, occupying the middle and extending to the sides, and an apical black band, which is broader than the basal black band (sometimes the elytra are entirely brown); underside pale brown.

Head impunctate; frontal elevations very strongly developed, divided by a longitudinal impression. Antennæ long and thin, extending to the apex of the elytra; the third and following segments curved, the apex of each being strongly thickened. *Prothorax* subquadrate, broader than long, sides strongly rounded at the middle; surface somewhat convex, impunctate, the ante-basal impression deep and bounded on each side by an equally deep longitudinal impression, these longitudinal impressions being strongly punctate. *Scutellum* broad, ovate. *Elytra* finely punctate-striate, the longitudinal rows being arranged in pairs.

The entirely fulvous specimens can be differentiated by their thin antennæ from the genotype, *P. xanthospila*, which they otherwise resemble.

Length, 10–11½ mm.

TENASSERIM: Mount Mulai-yit [Mooleyit], iv. 1887 (*L. Fea*).

Type in the Genoa Museum. I have not seen the type of this species.

Genus XUTHEA, *Baly*.

Xuthea, Baly, Ann. & Mag. Nat. Hist. (3) xvi, 1865, p. 248.

GENOTYPE, *Xuthea orientalis*, Baly.

Body elongate-ovate. *Head* exserted, frontal elevations and carinæ present; antennæ long and slender, passing a little distance beyond the middle of the body; eyes strongly convex. *Prothorax* more or less nearly quadrate, slightly broader than long; anterior and posterior angles furnished each with a fine seta; in front of the basal margin there is a transverse depression, terminated on each side by a longitudinal line. *Scutellum* small, nearly triangular, with apex broadly rounded. *Elytra* broader at base than prothorax; the humerus is raised and convex, and between it and the scutellum there is also a convex portion; surface of the elytra regularly punctate-striate. *Underside*: anterior coxal cavities closed behind; all the tibiæ armed at the apex with an acute spine; hind femora fairly thickened; claws appendiculate.

In the male the first segments of all the tarsi are dilated.

Range. India.

Key to the Species.

Colour dull blue, sometimes mixed with green or pure metallic-blue; tibiæ and tarsi not distinctly brown; pronotum, seen under a hand-lens, distinctly punctate, with a mixture of coarse and fine punctures .... *X. orientalis*, Baly, [p. 246.

Colour shining green, or sometimes with a bronze tinge; tibiæ and tarsi distinctly brown; pronotum, seen under a high power, very finely punctate or sometimes appearing impunctate .... *X. metallica*, Jac., [p. 249.

177. Xuthea orientalis, *Baly*.

Xuthea orientalis, Baly, Ann. & Mag. Nat. Hist. (3) xvi, 1865, p. 249: Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 429.

Colour dull blue, sometimes with a mixture of green or pure metallic blue; the four basal segments of the antennæ, the labrum in part, and palpi, yellow-brown; the seven apical segments of the antennæ piceous; the tibiæ and tarsi, their points of articulation in particular, much tinged with brown.

Head with vertex convex, impunctate with the exception of a few large punctures in front, where it is somewhat wrinkled, and separated from the face by a sinuous impression running obliquely on either side to the apices of the carinæ; the whole face is covered with longish hairs; interocular space rugose, the carina moderately

elevated, not very broad. Antennæ with first segment long and club-shaped, second also club-shaped but thinner than first and somewhat shorter than third, fourth almost equal in length to the third, but shorter than the following, fifth, sixth, and seventh almost equal in length, eighth shorter than seventh or ninth, the last three almost equal in length. *Prothorax* subquadrate, slightly broader than long; lateral margins almost straight but somewhat convex at about the middle, anterior margin almost straight posterior widely arched, anterior angles slightly expanded, posterior

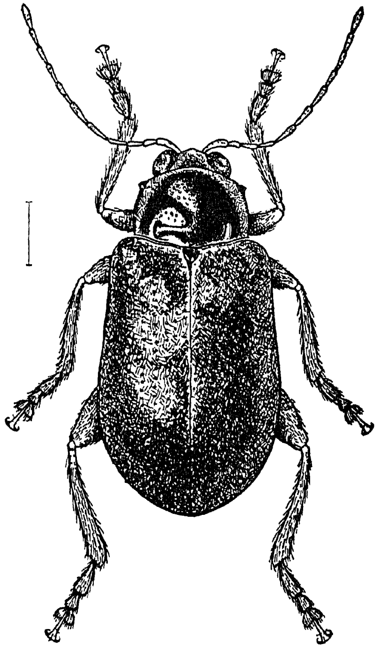

Fig. 89.—*Xuthea orientalis*, Baly, ♀.

angles obtuse; surface convex and entirely covered with a mixture of coarser and finer punctures, the density of which varies considerably; there is a transvere depression bounded on each side by a longitudinal line. *Scutellum* slightly depressed in the middle, impunctate. *Elytra* broader at base than prothorax; on each elytron there are eleven very regularly arranged longitudinal rows, including a long scutellar row, gradually vanishing beyond the middle, and an extreme marginal row; interstices smooth and flat; humerus prominently convex, and internal to it there is also a

convex area. *Underside* moderately shining, covered with longish adpressed hairs.

Usually, in the male the first segment of all the tarsi is dilated, and the elytra are shining; in the female the first segment of all the tarsi is normal and the elytra are dull. But all the examples from Assam and Manipur, twelve in number, are blue with a purplish sheen, and shining, and this entirely shiny form does not have the first segment of the tarsi dilated, as do the male examples from the Darjeeling District.

Length, 6½–8½ mm.

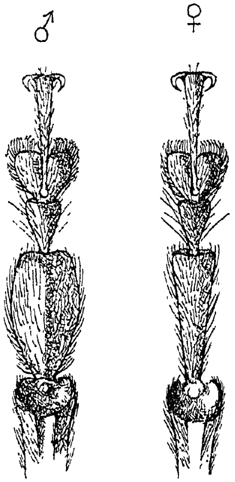

Fig. 90.—*Xuthea orientalis*, Baly; front tarsus of male and female.

Sikkim: Gopaldhara, Rungbong Valley (*H. Stevens*); Darjeeling (ex coll. F. Moore, Brit. Mus.); Namsoo, 2100 ft., 27. v. 1918 (*H. Stevens*); Pashok, 4000 ft., 26. v–14. vi. 1916 (*F. H. Gravely*); Siliguri, 18–20. vii. 1907 (Indian Museum); Kurseong, 4700–5000 ft., 20. vi. 1910 (*Annandale*); Lebong, 6000–6600 ft., 13. vi. 1914 (*F. H. Gravely*); Ghumti, 4000 ft., vii. 1911 (*F. H. Gravely*). United Provinces: Almora, Kumaon, common in rains on *Gerardina* and *Urtica*; Naini Tal; Bhawali, 23. vii. 1921 (these data all based on material collected by *H. G. Champion*). Assam: Manipur (*Doherty*); Khasi Hills. Burma: Ruby Mines, 5500–7500 ft.

Type in the British Museum, its locality-label bearing no data beyond "India."

178. **Xuthea metallica**, *Jacoby*.

Pseudodera metallica, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 267.

Body elongate and parallel-sided. Colour metallic-green; antennæ, tibiæ, and tarsi brown; labrum black, margined with brown; underside more coppery in colour, but with a less metallic sheen.

Head with vertex generally impunctate, except for a few scattered punctures in front and some more near the base in certain examples; there is a deep oblique sinuous impression at each side above the base of the antenna; frontal tubercles rather small, triangular, interantennal carina raised and long, clypeus rugose, labrum impressed with a row of deep punctures. Antennæ extending beyond the middle of the elytra; first segment thickened and club-shaped, second half the length of third, fourth nearly as long as the preceding, fifth longer, sixth and seventh each slightly shorter than fifth but equal to each other, eighth, ninth, and tenth almost equal, eleventh slightly longer; the six apical segments slightly thickened; the relative lengths of the segments vary to a certain extent in the sexes. *Prothorax* somewhat broader than long (not twice as broad as long, as Jacoby erroneously states), sides very slightly rounded, very narrowly margined, anterior lateral angles somewhat expanded and posterior angles pointedly produced; the ante-basal transverse depression, which is bounded on each side by a perpendicular impression, is much deeper than in *X. orientalis*. *Scutellum* triangular, apex rounded, surface convex and impunctate. *Elytra* broader at base than prothorax; at the base, internal to the prominent humerus, is a distinctly convex part; surface regularly punctate-striate, each elytron having eleven longitudinal rows of punctures, including a scutellar and an extreme marginal row; the seriate punctures themselves become rather obsolete near the apex, which is subtruncate; intervals smooth. *Underside*: all the tibiæ with a little spine at the apex; first segment of posterior tarsi as long as the two following segments together; claws appendiculate.

As in *X. orientalis*, the males have the first segment of the tarsi dilated.

Length, 6–7 mm.

MADRAS: Madura; Nilgiri Hills (*G. F. Hampson*, *H. L. Andrewes*); Ootacamund (Champion Coll., ex Tomlin). The example from Ootacamund has bronzy reflections and the pronotal punctures are extremely fine.

Type in the British Museum.

Genus AMPHIMELA, *Chapuis.*

Amphimela, Chap., Gen. Col. xi, 1875, p. 34.
Xanthocycla, Baly, Trans. Ent. Soc. Lond. 1875, p. 29.

GENOTYPE, *Amphimela mouhoti*, Chapuis (Indo-China).

This genus was founded by Chapuis for the reception of an insect from Laos, Indo-China. In the same year Baly described a species which he called *Xanthocycla chapuisii* from the same locality. It has been determined that these two species are identical. Chapuis regarded the insect as remarkable because the antennæ are inserted close to the inner edge of the eyes and are separated by the whole breadth of the forehead; this condition is unusual among HALTICINÆ, in which the antennæ are normally approximated. But the hind femora in this genus are considerably thickened, which is characteristic of HALTICINÆ.

Body oval, strongly convex: viewed sideways the highest point of the convexity is just behind the scutellum; from this point the outline slopes suddenly to the front, and gradually towards the posterior, end. *Head* broad; interocular space flat, without any ridges, elevations, or carinæ. Antennæ eleven-segmented, slender, scarcely half the length of the body. Eyes rather large and convex. *Prothorax* much broader than long; posterior margin bisinuate on either side of the middle (*i. e.*, with four sinuations altogether), and with a median lobe which is slightly produced backwards; front margin widely emarginate, fitting to the width of the head. *Scutellum* sharply triangular. *Elytra* hardly broader at base than prothorax, very regularly punctate-striate, with a certain amount of space between the rows; besides the series of punctures the whole surface is very minutely and closely granulate-punctate. *Underside*: anterior coxal cavities closed; prosternum oblong, with the anterior part broadly dilated; mesosternum almost hidden in the front portion of the metasternum, which lies between the mesocoxæ and is produced behind, reaching between the metacoxæ; posterior femora very strongly dilated: posterior tibiæ short, slightly dilated towards the apex, where they are armed with a spine, and channelled on their dorsal side; claws appendiculate.

Range. India, Burma, Indo-China, Australia.

179. Amphimela mouhoti, *Chapuis.*

Amphimela mouhoti, Chap., Gen. Col. xi, 1875, p. 36; Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 204.
Xanthocycla chapuisii, Baly, Trans. Ent. Soc. Lond. 1875, p. 29.

Body ovate, narrowed behind, strongly convex. Colour yellow-brown.

Head rather broad, short; vertex, interocular and interantennal areas entirely flat, without carinæ or sutures, and closely punctate; eyes not very convex. Antennæ scarcely half the length of the

body, rather slender; the four basal segments more slender, smooth, hairless; the seven apical segments more thickened, sparsely covered with bristly hairs; first segment long and club-shaped, second slightly thicker than third, which is almost equal to fourth, fifth to eleventh almost equal. *Prothorax* about one millimetre broader than long, the greatest length being along the middle, basal margin oblique and bisinuate on either side, the median lobe distinctly produced; anterior angles curved slightly outwards, obtuse at the apex, posterior angles acute; each of the four angles bearing a fine seta; sides convexly rounded; surface transversely convex, closely and rather coarsely, but not deeply, punctate, faintly rugulose, interspaces granulose. *Scutellum* small, triangular, and with a few punctures. *Elytra* hardly broader at base than prothorax, strongly punctate-striate, the interspaces and

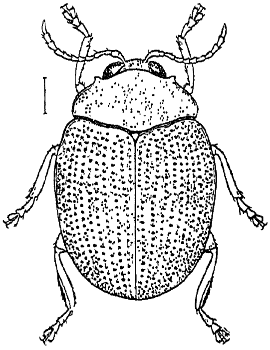

Fig. 91.—*Amphimela mouhoti*, Chapuis.

whole of the surface finely but distinctly punctate, the interstitial punctures being much finer, and giving the surface a granulose appearance; on each elytron there are eleven longitudinal rows of punctures, including a scutellar row, nine principal rows, and an extreme marginal row; the rows converge towards the apex; counting the scutellar row as the first, the eighth and ninth rows commence from a point immediately behind the slightly convex humerus; the interspace between the tenth and the extreme marginal row is much wider than the other interspaces at the base, but narrows towards the apex. *Underside* more or less sparsely covered with fine hairs, and closely and strongly punctate.

Length, 5 mm.

Burma: Bhamo (*Fea*). Tenasserim (*Doherty*). Indo-China: Laos (type-locality); Cambodia. Java.

The location of the *type* of *Amphimela mouhoti* is unknown to me.

Type of *Xanthocycla chapuisii* in the British Museum. On the label attached to this type Baly wrote "Laos," but in the published description he wrote "India," probably under the misapprehension that Laos was in India.

Genus CLITEA, *Baly*.

Clitea, Baly, Trans. Ent. Soc. Lond. 1877, p. 287.

GENOTYPE, *Clitea picta*, Baly.

Body elongate-ovate, oblong and, compared to that of *Amphimela*, not strongly convex. *Head* broad, without frontal tubercles, interantennal space broad, eyes distant, antennæ short. *Prothorax* convex, its entire surface covered with larger and much smaller punctures; sides rounded and narrowly margined, at the anterior angles the margin is expanded and the edge of the expanded portion may be convex or nearly straight in outline; basal margin sinuate, slightly produced in the middle. *Scutellum* sharply triangular and impunctate. *Elytra* hardly broader at base than prothorax, parallel-sided, punctate-striate; besides bearing the rows of punctures the whole surface is closely covered with minute punctures (granulate); interstices generally flat, in some cases some of them may be slightly convex, and the distances between the rows of punctures also differ. *Underside*: abdominal sternites minutely and sparsely punctate; anterior coxal cavities closed behind; posterior femora much thickened; claws appendiculate.

Range. India, Burma.

Key to the Species.

Insect red-brown with black patches	*C. picta*, Baly, p. 252.
Insect greenish-æneous on the upper side and yellow-brown beneath	*C. indica*, Jac., p. 254.

180. Clitea picta, *Baly*.

Clitea picta, Baly, Trans. Ent. Soc. Lond. 1877, p. 287; Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 422; Jac., Ann. Mus. Civ. Genova, xxviii, 1889, p. 204.

Body oblong-ovate. Colour reddish-brown, with the following black patches: a large patch covering the whole of the pronotum except the sides; continuous with the pronotal patch there is a large patch on the basal part of the elytra, covering the humeral callus, whence its boundary extends obliquely across the disc; besides this, on each elytron, there are a broad post-median and an apical patch; the thickened posterior femora are black.

Head broad, densely punctate. Antennæ short, passing a little distance beyond the base of the pronotum, first segment club-shaped, second thicker and shorter than third, which is slender and equal to the fourth in length; from the fifth onwards the

segments become larger and thicker. *Prothorax* broader than long, narrowed in front, sides slightly rounded, front margin straight, base sinuate, anterior angles expanded into a small hollow, posterior almost right angles; surface convex, very densely

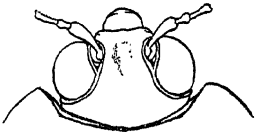

Fig. 92.—*Clitea picta*, Baly; showing points of insertion of antennæ close to inner margins of eyes

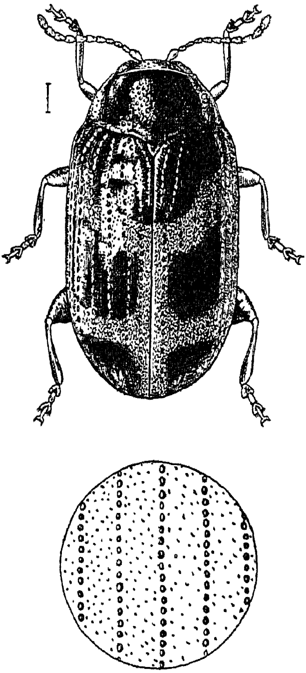

Fig. 93.—*Clitea picta*, Baly; whole insect, and part of the surface of the elytra, enlarged to show the punctuation.

punctate with larger and much finer punctures, which are indiscriminately mixed. *Scutellum* small, triangular, smooth, and impunctate. *Elytra* hardly broader at base than prothorax, humerus convex and very finely punctate; each elytron has a

long scutellar row of punctures, and ten other regular striæ of deeply impressed punctures; the interspaces between the rows are almost of equal width, except that between the eighth and ninth rows, which is slightly narrower, and that between the ninth and tenth (*i. e.*, along the extreme margin), which is the broadest and is slightly raised; the interspaces on the inner half of the elytra are flat; entire surface closely covered with very fine punctures in addition to the seriate punctures. *Underside* sparsely punctate, each puncture bearing a silvery hair.

Length, 4½ mm.; *breadth*, 2½ mm.

BENGAL: Mandar. BOMBAY: Kanara (*Andrewes*). BURMA: Bhamo (*Fea*); Toungoo.

Type in the British Museum.

181. **Clitea indica**, *Jacoby*.

Mantura indica, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 269.

Body elongate and parallel-sided. Upper side greenish-æneous; antennæ, labrum, clypeus, and underside fulvous; in parts of the underside the colour is almost pitchy.

Head closely punctate with larger and more minute punctures, frontal tubercles and interantennal carina absent. Antennæ widely separated, inserted near the lower part of the eyes, extending slightly beyond the base of the prothorax; basal segment elongate and club-shaped, second slightly thicker and almost equal to third, fourth equal to third; the following segments slightly longer, thicker, and more bristly; the surface on either side between the eye and the labrum is channelled to receive the basal segment of the antenna. *Prothorax* somewhat broader than long, widened at the middle, narrowed in front, sides slightly rounded, narrowly margined, anterior angles produced into a slightly truncate tooth, posterior angles rounded, hind margin broadly rounded and slightly produced in the middle; surface convex, closely impressed with larger round and numerous smaller punctures; the larger punctures are more numerous at the sides than in the middle. *Scutellum* triangular, with surface impunctate. *Elytra* as broad at base as prothorax, regularly and strongly punctate-striate, each elytron with eleven rows of punctures, including a scutellar and an extreme marginal row; interstices very closely and finely punctate. *Underside*: abdominal sternites finely punctate.

Length, 3½ mm.; *breadth*, 2 mm.

BOMBAY: Belgaum.

Type in the British Museum.

Genus **KAMALA** *, gen. nov.

GENOTYPE, *Hypnophila violaceipennis*, Jacoby.

This genus is proposed for the reception of four Ceylonese insects, which were placed in *Hypnophila* by Jacoby. The genus *Hypnophila* was erected by Foudras in 1860 (Mulsant, Col. France, Altisides, p. 282) for a European species which he called *curicis*, Märkel. Foudras separated the genus from *Apteropeda*, Chevr.; I have no means of examining his genotype. Chapuis (Gen. Col. xi, 1875, p. 129) places *Hypnophila* in his group MNIOPHILITES, which is characterized, according to him, by having the anterior coxal cavities open behind. In the four species of *Kamala* from Ceylon described here the anterior coxal cavities are closed behind. Accepting Chapuis's view of this part of the insect's structure in *Hypnophila*, I have no other alternative but to erect a new genus for the Ceylonese beetles. Geographical considerations, moreover, lend additional weight to the view which I have taken. In describing these insects Jacoby is silent about the coxal cavities, neither does he say if he has seen Foudras's genotype of *Hypnophila.*

Very small, spheroidal insects, narrowed in front and more so behind. All are apterous. *Head* broad, vertex not very convex, frontal tubercles and carina absent, interantennal space rather broad. Antennæ very short, reaching about to the base of the pronotum, the five basal segments always coloured and constructed differently from the remaining segments, which form a dilated club; first segment usually long and thickened at its apex; second generally thicker than third, fourth, fifth, and sixth shorter, the latter generally forming the base of the club; the segments composing the latter are gradually dilated, somewhat narrowing at the apex. *Prothorax* always broader than long, sides somewhat rounded, the four angles generally more or less rounded; surface convex and smooth, with sides sloping down, while in some cases there is on each side, perpendicular to the base, a small vertical notch, which has to be carefully looked for. *Scutellum* always insignificant. *Elytra* scarcely, or at most slightly, broader at base than prothorax, widening immediately behind the base and attaining their greatest width about the middle, then narrowing considerably towards the apex; surface extremely convex and punctate-striate. *Underside*: prosternum comparatively broad and often marked with small pits; anterior coxal cavities closed behind; abdominal sternites generally smooth, convex along the longitudinal middle line; posterior femora and tibiæ very well developed, the latter dilated and flattened towards the apex, generally bearing a row of fine spinules on the outer edge of the flattened surface and a well-developed spine at the apex; tarsi generally prominent, claw-segment long; in the hind tarsi the

* A Sanskrit name for the lotus.

first segment is as long as the following two together; the claws according to Jacoby are simple, but with careful examination a little projection can be detected beneath at the base.

Range. Ceylon.

Key to the Species.

1. Insect with head, prothorax, and legs red-brown; elytra black	*K. apicipennis*, Jac., [p. 256.
Insect not so coloured	2.
2. Pronotum with a few fine punctures; elytra violaceous	*K. violaceipennis*, Jac., [p. 257.
Insect not so characterized	3.
3. Pronotum with fine longitudinal rugosities .	*K. rugicollis*, Jac., [p. 258.
Pronotum without rugosities, impunctate except for a few scattered, extremely fine, indistinct punctures	*K. lævicollis*, sp. n., [p. 258.

Hypnophila flavipennis, Motsch., which is doubtfully placed in the genus *Kamala* in this book (p. 259), is not included in the above key.

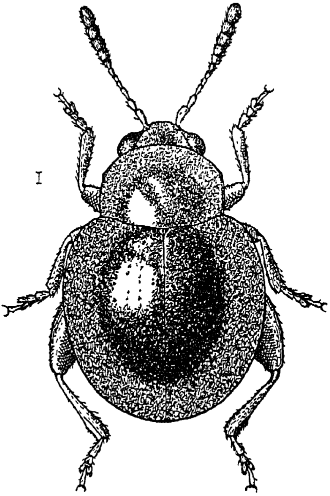

Fig. 94.—*Kamala apicipennis*, Jac.

182. **Kamala apicipennis**, *Jacoby*.

Hypnophila apicipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 89.

Body very strongly convex, pointed behind Black; the five basal segments of the antennæ, head, thorax, and legs rufous; apex of elytra red-brown, this colour extending partly to the sides; underside red-brown.

Head broad, vertex not convex, impunctate, interantennal space broad, frontal tubercles and carina absent. Antennæ with the six apical segments forming a thickened club; first segment the longest, thickened, second also thicker than third, which is slender, fourth shorter than third, fifth equal to fourth. *Prothorax* broader than long, transversely convex, shining, impunctate, the basal margin with a very short longitudinal impression on either side, which is seen with difficulty, sides nearly straight, anterior angles rounded. *Scutellum* minute, triangular, impunctate. *Elytra* broader at base than prothorax, subglobose, strongly punctate-striate, each elytron having ten rows, including a short scutellar row. *Underside* smooth, impunctate; hind tibiæ longer than the others; tarsi long, the first segment of the hind pair as long as

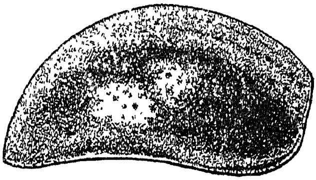

Fig. 95.—*Kamala apicipennis*, Jac.; elytron in profile.

the following two together; each of the claws has a thickening at the base beneath, and if this be regarded as an appendix then, as remarked above in the description of the genus, the claws cannot be called simple, as was done by Jacoby.

Length, $1\frac{1}{4}$ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum, a unique example.

183. **Kamala violaceipennis**, *Jacoby*.

Hypnophila violaceipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 88.

Body spheroidal, strongly convex. Black; the five basal segments of the antennæ and the posterior tibiæ obscure testaceous; scutellum piceous; elytra dark violaceous; underside dark pitch-brown.

Head impunctate, frontal tubercles obsolete. Antennæ with the last five segments forming a thickened club; the first segment the longest, second thicker than third, which is slender, fourth, fifth, and sixth each shorter and equal. *Prothorax* broader than long, sides straight, base with a very short longitudinal notch on each side; anterior lateral angles rounded; surface with a very few minute punctures, visible only under a high power. *Scutellum* small, triangular, with apex rounded, impunctate.

Elytra very strongly convex, narrowed and rather pointed at the apex, each elytron with ten rows of punctures, including a short scutellar row. *Underside* smooth, shining, impunctate.

Length, 1½ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

184. **Kamala rugicollis**, *Jacoby*.

Hypnophila rugicollis, Jac., Proc. Zool. Soc. Lond. 1887, p. 89.

Black; elytra black with a purplish sheen when seen at certain angles.

Head finely rugose. Antennæ constructed similarly to those of *K. apicipennis*. *Prothorax* extremely convex, sloping down at the sides, broader than long; surface entirely covered with fine longitudinal rugosities, giving it an opaque appearance; on either side there is a small longitudinal indentation situated at the base, and a lateral oblique impression extending close to the lateral margin, the space between these two impressions appearing somewhat thickened, shining and without rugosity. *Scutellum* small, broad, with apex rounded and surface smooth and impunctate. *Elytra* ovate, very convex and pointed at the apex, punctate-striate, the punctures regular, moderately deep, and close together, each elytron having eleven rows, including a short scutellar and an extreme marginal row. *Underside* smooth, shining, impunctate, the sternal plates pitted; elytral epipleura broadest at the base and tapering to the apex; posterior femora very strongly incrassate; posterior tibiæ straight and armed at the apex with a long spine; first segment of posterior tarsi nearly as long as the three following segments together; first segment of front and middle tarsi much broadened.

Length, 1½ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

185. **Kamala lævicollis**, sp. nov.

Body convex, spheroidal, pointed behind. Black above; underside, tibiæ, and tarsi pitch-brown; the basal segments of the antennæ light brown, the remaining segments black.

Head with vertex not convex, impunctate, interocular space flat, smooth, interantennal space rather broad. Antennæ short (as usual in the genus); basal segment the longest, club-shaped, second thicker than third, which is slender, fourth, fifth, and sixth very short; from the sixth to the end the segments form a thickened club. *Prothorax* broader than long, convex, smooth and impunctate, except for a few scattered, extremely fine,

indistinct punctures; the short vertical notch on either side at the base is absent; sides feebly rounded, lateral angles rounded. *Scutellum* small, triangular with apex rounded, impunctate. *Elytra* hardly broader at base than prothorax, punctate-striate, each elytron having ten rows, including a short scutellar row. *Underside* smooth, shining, impunctate.

Length, $1\frac{1}{4}$ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 28. ii.–12. iii. 1882 (*G. Lewis*).

Type in the British Museum. Described from one example.

Kamala flavipennis, *Motschulsky*.

Hypnophila flavipennis, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 422.

In form resembling *Hypn. caricis*, but a little more obtuse; ovate, convex, shining, black; pronotum almost piceous in front; elytra yellow-brown, distinctly punctate-striate.

Length, $2\frac{1}{2}$ mm.; *breadth*, $1\frac{1}{4}$ mm.

CEYLON: Nuwara Eliya.

There is no possibility of seeing Motschulsky's type, and the above is a translation from the original description in Latin. Probably Motschulsky's phrase "a little more obtuse" refers to the apex of the elytra.

This species is here tentatively placed in *Kamala*. In the British Museum there are many specimens which roughly answer to the above description.

Genus **NEORTHAEA**, nom. nov.

Orthaea, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 201.

GENOTYPE, *Orthaea viridipennis*, Jac.

The name *Orthaea* is preoccupied for a hemipterous insect (see Dallas, List of Hemip. Insects, British Museum Catalogue, part 2, 1852, p. 580). *Neorthaea* is therefore proposed here as the name of the genus.

Body rounded, very convex, narrowed in front and behind. *Head* with vertex convex and with a broad longitudinal raised area on either side of which (*i. e.*, above the eye) is a deep furrow, continued to the interocular space, thus forming the front boundary of the raised area previously mentioned; frontal elevations and carina absent. Antennæ short, extending to a little distance beyond the base of the pronotum, somewhat thickened towards the apex; the first segment lies in a channel between the lower edge of the eye and the base of the mandible. *Prothorax* broader than long, the length along the middle longitudinal line greater than that along the sides; the base somewhat sinuate while on either side, in front of the humerus, is situated a short

notch, perpendicular to the basal margin. *Scutellum* small, triangular. *Elytra* hardly broader at base than prothorax; surface in some species punctate-striate, while in others there is scarcely any trace of seriate arrangement; in the seriately punctate species the first stria commences at a little distance from the suture, while on the surface between the suture and the first longitudinal row the punctures are confused, and in the type-species the whole interstitial surface is closely covered with very minute punctures; humeri prominently convex. *Underside*: epipleura of elytra very broad, concave, and extending to the apex; prosternum distinct, longitudinally channelled; mesosternum extremely short; posterior femora moderately thickened; posterior tibiæ with a distinct apical spine; first segment of posterior tarsi about equal in length to the following two together; claws appendiculate; anterior coxal cavities closed behind.

Range. India, Burma, Siam, Indo-China.

Key to the Species.

1. Insect brown, with or without a bronzy sheen above	2.
Insect not brown	4.
2. Entirely brown, without bronzy sheen .	*N. fulva*, Jac., p. 260.
Brown or dark brown, with a bronzy sheen above	3.
3. First segment of posterior tarsi broad, bilobed	*N. subglobosa*, Hope, p. 262.
First segment of posterior tarsi not broad, but elongate	*N. micans*, Baly, p. 263.
4. Elytra metallic-green; head and pronotum red-brown; length 4½ mm...	*N. viridipennis*, Jac., p. 264.
Insect entirely bluish-green; length 3 mm.	*N. burmanica*, Jac., p. 264.

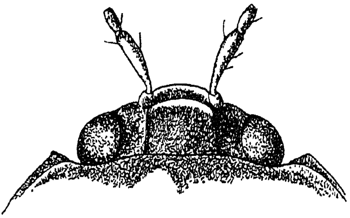

Fig. 96.—*Neorthaea fulva*, Jac.
Head, showing median elevated longitudinal area.

186. **Neorthaea fulva**, *Jacoby*.

Orthaea fulva, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 107.

Body rounded, narrowed in front and behind, strongly convex. Fulvous; the five basal segments of the antennæ also fulvous, the remaining segments brownish-black.

Head impunctate, except for one or two stray punctures; vertex convex, deeply and broadly sulcate in front of the eyes; clypeus separated by a transverse channel, impunctate, transverse, rectangular. Antennæ short, from the fifth to the last the segments are gradually thickened; first segment the longest and club-shaped, second small, third thinner and longer than second. *Prothorax* transverse, anterior margin nearly straight, base on either side obliquely rounded and with a very small perpendicular notch, which can be seen only under a high power; median part of the base broadly rounded; surface uniformly convex from side to side and minutely punctate, lateral margins nearly straight,

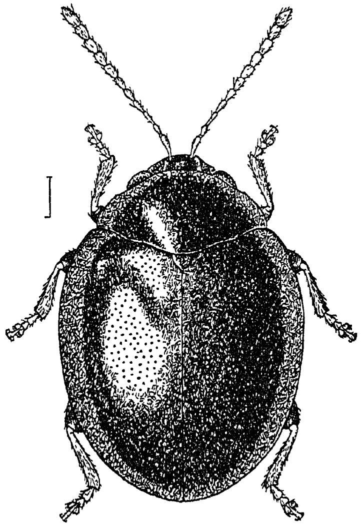

Fig. 97.—*Neorthaea fulva*, Jac.

anterior lateral angles strongly pointed. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* broader at base than prothorax; surface punctate-striate, the punctures becoming more regularly seriate at a distance from the suture *; the humerus and a longitudinal strip along the lateral margin are impunctate; epipleura very broad, finely but distinctly punctate in closely approximated irregular rows; sides near the shoulders slightly thickened and impunctate at the base, while along the

* In fig. 97, unfortunately, no seriate arrangement of the punctures is indicated. The series are not very regular, and the presence of punctures in the intervals as well strengthens the impression of confused punctuation when the insect is viewed from certain aspects.

lateral margin lies a row of deeper punctures. *Underside*: prosternum rather broad, subquadrate.

Length, 5¼ mm.

NILGIRI HILLS.

Type in the British Museum.

187. **Neorthaea subglobosa**, *Hope*.

Coccinella subglobosa, Hope, in Gray, Zool. Misc. 1831, p. 31.
Plagiodera subglobosa, Weise, Coleopt. Cat., part 68 (Chrysomelinæ), 1916, p. 136.

Shining brown, with a slight bronzy sheen above; underside rather lighter in colour.

Head with the longitudinally raised area almost impunctate except for a few minute scattered punctures; interantennal space convex, carina absent. Antennæ hardly extending to the middle of the elytra; first segment the longest, club-shaped, second slightly shorter than third, fourth also slightly shorter than third; the following segments more or less nearly equal one to the other, slightly thickened and pubescent. *Prothorax* broader than long,

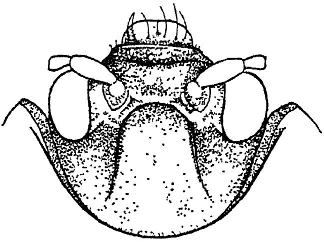

Fig. 98.—*Neorthaea subglobosa*, Hope. Head, showing median longitudinal elevation on the frons; mandibles not shown.

basal margin somewhat sinuate at the middle, sides straighter at the base and rounded towards the apex, anterior lateral angles somewhat produced, posterior angles rounded, slightly greater than a right angle; surface convex from side to side, closely and finely punctate, the punctures being much finer than those on the elytra. *Scutellum* small, triangular, impunctate. *Elytra* broader than prothorax, confusedly, strongly, and closely punctate; some much finer punctures are visible in the interstices, particularly at the base; humerus convex, impunctate; along the basal part of the lateral margin is a raised impunctate strip. *Underside*: abdominal sternites punctate; elytral epipleura transversely wrinkled; first segment of posterior tarsi broad, bilobed.

Length, 5¼ mm.

NEPAL (Hardwick Coll.).

Type in the British Museum.

Weise referred this species to the genus *Plagiodera* in his catalogue of CHRYSOMELINÆ, as cited above. Gahan, when arranging the HALTICINÆ in the British Museum, placed it in the genus *Euphitrea*—a conclusion which was incorporated by Bryant in his paper, "Notes on Synonymy in the Phytophaga" (Ann. & Mag. Nat. Hist. (9) xii, 1923, p. 143).

188. **Neorthaea micans**, *Baly*.

Euphitrea micans, Baly, Trans. Ent. Soc. Lond. 1875, p. 28.
Euphitrea assamensis, Baly, Cistula Ent. ii, 1879, p. 443.

Body rounded and convex. Shining brown to dark pitchy, always with a brassy sheen above.

Head with front longitudinally raised and depressed on either side above the eye, the raised part of the surface having a few fine punctures; frontal elevations and carina obsolete, as is characteristic of the genus, although the interocular space and the broad interantennal space are very uneven. Antennæ scarcely half the length of the body; first segment the longest, club-shaped, second shorter, third slightly but distinctly longer than second; from the fourth the segments are somewhat thicker and almost equal. *Prothorax* much broader than long, basal margin bisinuate on either side, median lobe of the base obtusely rounded, sides rounded, converging in front, anterior angles acute, posterior nearly obsolete; surface convex from side to side, finely punctate, impressed on either side (just nearer to the middle than the humerus) with a short longitudinal notch on the basal margin. *Scutellum* triangular, impunctate. *Elytra* broader than prothorax, shoulders comparatively prominent, sides rounded and slightly converging to the apex; there is, however, some tendency towards seriate arrangement; surface confusedly, closely, and distinctly punctate; sometimes two faint longitudinal interstices are recognisable, and along the lateral margin, near the base, is an impunctate raised strip, bounded on the inner side by a row of punctures. *Underside* closely and strongly punctate; first segment of posterior tarsi not broad, but elongate.

Length, 5–7 mm. The type of *Euphitrea micans* (from Sumatra) measures 6 mm., and that of *Eu. assamensis* 5 mm.

BOMBAY: Kanara (*Andrewes*). NILGIRI HILLS (*Andrewes*). ASSAM: Manipur (*Doherty*). BURMA: Karen Hills, v–xii. 1888 (*L. Fea*), and 18–21. v. 1916 (*F. M. Mackwood*). TONKIN: Mauson Mts., iv–v (*H. Frühstorfer*). JAVA. SUMATRA. BORNEO.

Types of *Euphitrea micans* and *Eu. assamensis* both in the British Museum. In describing the latter Baly had only a single example before him.

There are specimens in the British Museum from all the localities given above. Three examples from the Karen Hills, 6¼ mm. long., are very dark brown, with the usual bronzy sheen; the specimens from Tonkin and Manipur are 6 mm. and 6½ mm.

long respectively, and of the same very dark colour as those from the Karen Hills. In spite of the differences in size and intensity of colouring, the specimens exhibit no structural divergences which cannot be considered as within the range of individual variation.

189. **Neorthaea viridipennis**, *Jacoby*.

Orthaea viridipennis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 202.

Elytra metallic-green; head, antennæ, prothorax, scutellum, legs, and underside red-brown; lateral margins of prothorax darker.

Head convex, with vertex punctate, the punctures being finer and sparser towards the bases of the antennæ; lateral furrows bounded by an acute ridge, clypeus broad. Antennæ short, extending a little beyond the base of the pronotum, covered (except the two basal segments) with fine hair; first segment long and club-shaped, second equal to, but thicker than, third, fourth as long as third and thicker at its apex than at its base; from the fifth to the eleventh the segments are thicker and about equal. *Prothorax* broader than long, narrowed in front, basal margin sinuate, sides feebly rounded, their edges sharp, anterior angles prominent, surface uniformly convex and closely punctate. *Scutellum* small, triangular, impunctate. *Elytra* convex; surface punctate-striate, the striæ closely placed and, in some aspects, presenting an appearance of being paired; interstices closely covered with minute punctures; humeri raised, and bearing only the minute, not the larger, punctures; between the suture and the first regular row of punctures is a broad space, narrowing towards the apex, containing traces of a scutellar row and of other rows; thus this space presents an appearance of a mixture of larger and finer punctures, at least in the example marked "type" in the British Museum; along the lateral margin of either elytron is a longitudinal convex strip, devoid of the larger punctures. *Underside* finely punctate and sparingly pubescent; elytral epipleura transversely wrinkled.

Length, 4½ mm.

TENASSERIM: Thagata, iii–iv. 1887 (*L. Fea*). BURMA: Karen Hills (*Doherty*).

There is an example marked "*type*" in the British Museum, and probably another similarly marked in the Genoa Museum.

190. **Neorthaea burmanica**, *Jacoby*.

Orthaea burmanica, Jac., Novit. Zool. i, 1894, p. 294.

Small, ovate, not so convex as some of the other species. Metallic blue-green above; underside black; the four basal segments of the antennæ, labrum, tarsi, and generally the points of articulation of the parts of the legs, pitch-brown.

Head with vertex impunctate, except for a few stray, extremely fine, punctures; the deep furrows above the eyes, as well as the other characteristic features of the head, are as is usual in the genus. Antennæ comparatively long, extending to about the middle of the elytra and sparsely covered with fine hairs; first segment the longest and club-shaped, second almost as long as third, which is more slender, fourth similar to the preceding; from the fifth to the last the segments are thicker and almost equal. *Prothorax* broader than long, basal margin sinuate, sides more or less straight, anterior angles thickened; surface convex, sloping down at the sides in front, confusedly punctate. *Scutellum* small, triangular, impunctate. *Elytra* broader at base than prothorax, punctate-striate, each elytron having eleven rows of punctures, including a scutellar and an extreme marginal row, the punctures in each row being not very regularly placed; humeri prominent, impunctate; this species differs from certain of its congeners in not having a confusion of punctures about the suture, as indicated, for instance, in the preceding species. *Underside* punctate, covered with hairs; epipleura broad and transversely wrinkled.

Length, 3 mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

Genus SPHÆROPLEURA, *Jacoby*.

Sphæropleura, Jac., Proc. Zool. Soc. Lond. 1887, p. 102.

GENOTYPE, *Sphæropleura tricostata*, Jac.

Body rounded, strongly convex, hemispherical. *Head* broad; antennæ filiform, slender. *Prothorax* strongly convex, without depressions. *Elytra* punctate-striate, the striæ not very regular. *Underside*: prosternum narrow, deeply channelled longitudinally; anterior coxal cavities closed; mesosternum deeply emarginate at the apex; posterior femora strongly incrassate, the tibiæ slender, not channelled on the upper side; first segment of the posterior tarsi as long as the two following segments united; claws appendiculate.

Range. Ceylon.

191. **Sphæropleura tricostata**, *Jacoby*.

Sphæropleura tricostata, Jac., Proc. Zool. Soc. Lond. 1887, p. 102.

Colour of antennæ, tibiæ, and tarsi generally dark brown, but the antennæ may be lighter; underside piceous; head and prothorax black; elytra black or dark brown.

Head: vertex convex, smooth, and impunctate; frontal tubercles and interantennal carina absent. Antennæ about one-half a millimetre shorter than the length of the body; first segment long nd slender, second almost as long as, but thicker than

fourth as long as third; from the fifth onwards each segment is very slightly thickened on the inner side. *Prothorax* strongly convex, broader than long, front margin slightly concave, posterior margin widely rounded, its angles being placed forwards, sides somewhat explanate, more or less oblique, anterior corners drawn forwards to an acute point, each of the anterior and posterior angles bearing a fine seta; surface smooth and impunctate. *Scutellum* triangular, with surface impunctate. *Elytra* broader at base than prothorax, humeri convex; punctate-striate,

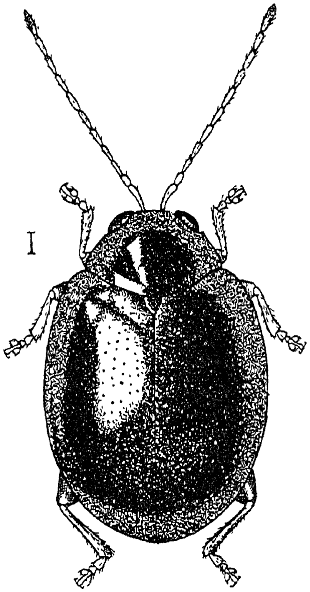

Fig. 99.—*Sphæropleura tricostata*, Jac.

the rows closely placed, more regular near the suture than towards the sides; it is not possible to count the number of rows with precision. In the female, on the sloping portion of the elytron towards the apex, there are three short prominent longitudinal costæ. *Underside*: abdominal sternites sparsely punctate and hairy.

Length, 2½ mm.; *breadth*, 2½ mm.; *length of antenna*, 2 mm.

CEYLON: Galle, on coast-level, 27.xi–4.xii. 1881 (*G. Lewis*).

Type in the British Museum.

Genus **ELYTROPACHYS**, *Motschulsky*.

Elytropachys, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 419.
Pexodorus, Jac., Proc. Zool. Soc. London, 1887, p. 94.

GENOTYPE, *Aphthona latissima*, Motsch. (Ceylon).

Body ovate, narrowed in front, broadened behind; not strongly convex above as compared with some related genera. *Head* broad; eyes strongly convex. Palpi slender, filiform. Antennæ filiform, second segment short, third and fourth equal in length. *Prothorax* broader than long, with the surface convex and impunctate. *Scutellum* triangular. *Elytra* slightly broader than prothorax at base, with a post-basal shallow depression, the area in front of which is convex; the fine punctures are more or less regularly arranged in rows. *Underside*: epipleura of the elytra narrowed considerably, but not continued behind the middle; anterior and middle tibiæ unarmed at the apex; each of the posterior tibiæ with a small minute spine at the apex; first segment of posterior tarsi as long as the two following together; claws appendiculate; prosternum distinct; anterior coxal cavities closed.

Range. Ceylon.

Motschulsky, in proposing the genus *Elytropachys* in 1866 made *Aphthona latissima*, Motsch., the genotype. In the British Museum there is an example bearing a label in Baly's handwriting, on which Baly states that the specimen was obtained from Motschulsky's collection, through Schaufuss, as an example of *Aphthona latissima*. I therefore take this particular specimen in the British Museum as authentically named by Motschulsky himself. In 1887 Jacoby described a new monotypic genus for a Ceylonese insect and called it *Pexodorus*, naming the species *P. ceylonensis*. On comparing these examples of *Pexodorus ceylonensis* and *Aphthona latissima*, I find that they are identical. Jacoby's *Pexodorus* must therefore become a synonym of Motschulsky's *Elytropachys*; while *Pexodorus ceylonensis*, Jac., falls as a synonym of *Elytropachys latissima*, Motsch. In the Munich Catalogue (Gemminger and Harold), xii, 1876, p. 3510, *Elytropachys*, Motsch., is treated as a synonym of *Aphthona*, Chevr. Motschulsky described the genus *Elytropachys* as "a Halticid with the characters of *Aphthona*, with pronotum very broad, and with elytra almost square, and transversely impressed on their anterior part."

No key to the species is given, as I have only seen one species, *E. latissima*; but translations of the brief original descriptions of four others are added.

192. Elytropachys latissima, *Motschulsky*.

Aphthona latissima, Motsch., Etud. Ent. vii, 1858, p. 106.
Elytropachys latissima, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 419.
Pexodorus ceylonensis, Jac., Proc. Zool. Soc. London, 1887, p. 95.

Black; the palpi, the five basal segments of the antennæ, the anterior and middle legs, and the posterior tibiæ, yellowish-brown; the six apical segments of the antennæ fuscous; labrum obscure brown.

Head broader than long, frontal elevations ovate but slightly raised and small; eyes entire and oblong. Antennæ about two-thirds the length of the body; first segment elongate, second small, third and fourth equal, fifth slightly shorter; from the sixth to the eleventh the segments are more or less nearly equal. *Prothorax* about twice as broad as long (not more than three times, as Jacoby states), posterior margin widely arched, sides narrowly margined, nearly straight, anterior angles somewhat broad and slightly produced, each of the anterior and posterior angles with a single seta; surface strongly convex and entirely impunctate. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* distinctly broader at base than prothorax, widened behind; each elytron very minutely and closely punctate, the punctures more or less arranged in longitudinal rows, but not regularly enough to allow of the rows being exactly counted. *Underside* smooth, impunctate, sparsely covered with fine hairs; prosternum distinct, but narrow; mesosternum slightly emarginate at its base.

Length, 4 mm.

CEYLON: type-locality; Dikoya, 3800–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type of *Aphthona latissima*, Motsch., unknown to me; that of *Pexodorus ceylonensis*, Jac., in the British Museum.

The following are rather free translations of Motschulsky's original descriptions of four other species, the location of the types of which I do not know. *E. dimidiata* was originally described in French, and the three which follow it in Latin:—

Elytropachys dimidiata, *Motschulsky*.

Aphthona dimidiata, Motsch., Etud. Ent. vii, 1858, p. 106; id., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 420.

With the broadened form of the preceding species (*E. latissima*), but of testaceous colour, the posterior half marked with a blackish-brown patch, bordered with testaceous and delimited obliquely in front towards the suture; eyes black; prothorax less transverse and more rounded at the sides; posterior femora and

underside testaceous, like the rest of the body; extremity of antennæ brownish.

Length, a little more than $2\frac{1}{2}$ mm.

CEYLON (*Nietner*).

Elytropachys viridescens, *Motschulsky*.

Elytropachys viridescens Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 419.

In form like *E. latissima*, but a little smaller. Shortly subovate, convex, shining, glabrous, greenish-bronze, antennæ and legs yellowish-testaceous, with the apices of the former, the posterior femora, and the underside, black.

Length, a little more than $2\frac{1}{2}$ mm.

CEYLON: Nuwara Eliya.

Elytropachys obscurata, *Motschulsky*.

Elytropachys obscurata, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 419.

In form like *E. viridescens*, but a little smaller. Shortly subovate, convex, shining, hairless, black, with the base of the antennæ, tibiæ, and tarsi reddish-testaceous, the posterior tibiæ infuscated.

Length, a little more than $2\frac{1}{2}$ mm.

CEYLON: Nuwara Eliya.

Elytropachys dorsalis, *Motschulsky*.

Elytropachys dorsalis, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 419.

In form like *E. latissima*, but the elytra are margined with red. Shortly subovate, convex, shining, hairless, red, with the head, thorax, and dorsum of the elytra black; underside somewhat fuscous ("subinfuscato").

Length, slightly over $2\frac{1}{2}$ mm.

CEYLON: Nuwara Eliya.

Genus **PANILURUS**, *Jacoby*.

Panilurus, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 392.

GENOTYPE, *Panilurus nilgiriensis*, Jac.

Body oblong-ovate, glabrous, metallic. *Head*: antennæ rather widely separated, the segments short, the terminal segments gradually thickened; frontal elevations absent. *Prothorax* short, transverse, sides slightly rounded, posterior margin rounded, surface impunctate. *Elytra* semi-regularly punctate, their epipleura broader at the base and narrowed towards the apex. *Underside*: posterior femora thickened and channelled under-

neath for the reception of the tibiæ; tibiæ not channelled, front and middle pairs unarmed, posterior pair armed with a small spine at the apex; first segment of posterior tarsi as long as the following segments together; claws appendiculate; prosternal process invisible between the coxæ; metasternum oblong; anterior coxal cavities closed behind.

More nearly allied to the Australian genus *Arsipoda* than to any other in which the anterior coxal cavities are closed, but differing in having the prothorax much more transverse and devoid of the perpendicular impression on either side of the pronotum at the base, the tibiæ not sulcate, and the prosternum not visible.

Range. India.

193. **Panilurus nilgiriensis**, *Jacoby*.

Panilurus nilgiriensis, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 393.

Colour above bright shining green or blue; underside metallic dark blue; the four basal segments of the antennæ, the tibiæ,

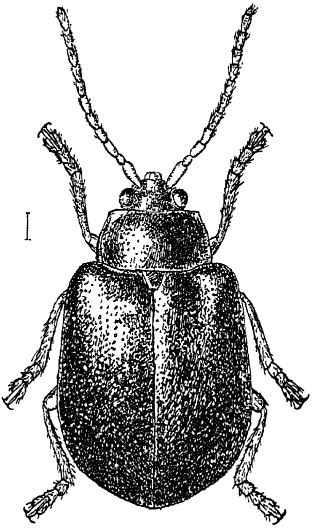

Fig. 100.—*Panilurus nilgiriensis*, Jac.

tarsi, and labrum brown; the front and middle legs pitch-black, the six apical segments of the antennæ blackish, but the blackish colour varies a great deal in shade; posterior femora metallic green or blue.

Head impunctate, without frontal elevations or carina; clypeus broad between the bases of the antennæ; apical segment of maxillary palpi acute and conical. Antennæ robust, long, being only a millimetre shorter than the length of the body; first segment club-shaped, elongate, second small and rounded, third and fourth nearly equal; the seven terminal segments gradually and slightly thickened, apical segment pointed. *Prothorax* broader than long, sides slightly rounded, anterior and posterior lateral angles not produced, slightly thickened, and having each a seta-bearing pore; basal margin rounded, surface convex and impunctate. *Scutellum* triangular, smooth, and impunctate. *Elytra* slightly widened towards the apex, broader at base than prothorax, base with a very shallow depression; finely punctate, the punctures being arranged in irregular and closely approximated rows; on either elytron there may be twenty-one or twenty-two rows, but owing to their irregularity the number cannot be exactly determined. *Underside* impunctate.

Length, 3–4 mm.; *breadth*, 2–2½ mm.

NILGIRI HILLS (*H. L. Andrewes*).

Type in the British Museum.

Genus ERYSTUS, *Jacoby*.

Erystus, Jac., Ann. Mus. Civ. Genova, xxii, 1885, p. 39.

GENOTYPE, *Erystus celebensis*, Jac. (Celebes).

Body broadly ovate. *Head*: eyes entire; antennæ rather short and robust, the segments, with the exception of the first and the last, being almost equal in length. *Prothorax* narrowly transverse, sides strongly rounded, surface distinctly punctate. *Scutellum* small, broader than long, triangular. *Elytra* semi-depressed and dilated at the sides, regularly punctate-striate, the interstices somewhat costate, lateral margins broadened, their epipleura very broad, concave when seen from the ventral side. *Underside*: anterior coxal cavities closed; prosternum rather broad, obsoletely carinate; posterior femora strongly incrassate; tibiæ short, dilated at the apex, the four anterior tibiæ unarmed, the posterior pair with a small spine (in the genotype, but this spine is absent in *E. andamanensis*); their dorsal surface obsoletely channelled; tarsi broad and short, nearly equal in length; claws appendiculate.

Range. Celebes, Borneo, Andaman Islands.

194. Erystus andamanensis, sp. nov.

Body broadly ovate. Light brown; the seven apical joints of the antennæ and the eyes black.

Head broad, vertex convex, smooth and impunctate, frontal elevations and carinæ obsolete, clypeus narrowly and slightly

elevated. Antennæ long, only half a millimetre shorter than the body, slightly attenuated towards the apex, sparsely covered (except the two or three basal segments) with fine hairs; first segment the longest and club-shaped; in this species the second segment is shorter than the third; the rest are almost equal. *Prothorax* much broader than long, sides strongly rounded, front and basal margins almost straight, anterior angles slightly explanate; surface uniformly convex from side to side, very finely and more or less closely punctate. *Scutellum* small, triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at base than prothorax, punctate-striate; on either elytron the arrangement of the striæ is as follows: a short

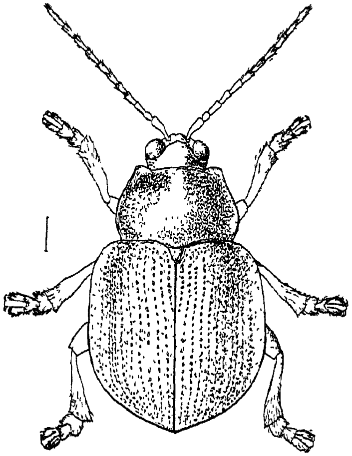

Fig. 101.—*Erystus andamanensis*, Maulik.

scutellar row, then follow nine rows at almost equal intervals; between the ninth and tenth rows the interspace is very broad; outside the tenth row is a strip of narrow explanate margin; interstices in this species appearing slightly raised towards the lateral margin but, not so pronouncedly raised as in the genotype; the interstices are scattered over with fine punctures, but the latter are not of the granulose type. *Underside* impunctate; posterior tibiæ not armed with a spine as in the genotype; claws appendiculate.

Length, $3\frac{1}{2}$ mm.

ANDAMAN ISLANDS (*Captain Wimberley*).

Type in the British Museum. Described from two examples.

Genus **PODAGRICA**, *Foudras.*

Podagrica, Foudras, Hist. Nat. Col. France, Altisides, 1860, p. 337.
Nisotra, Baly, Ann. & Mag. Nat. Hist. (3) xiv. 1864, p. 437; Weise, Naturg. Ins. Deutschl. vi, 1893, p. 681.

GENOTYPE, *Altica fuscipes*, Fabr. (Europe).

The insects of this genus are small and ovate. Their general colour-scheme is that the head, part of the antennæ, the pronotum, and legs are brown or red-brown and the elytra metallic blue. *Head* broad, with vertex convex, the latter bounded in front by two oblique impressed lines. Antennæ comparatively short, passing to a certain distance beyond the base of the pronotum, situated rather far apart; interantennal space uneven; each antenna thickens towards the apex, the thickened apical segments being more bristly than the basal segments. *Prothorax* broader than long, its surface being more or less convex; sides rounded, sometimes narrowly margined, anterior angles more or less expanded, the basal margin somewhat sinuate; nearer the lateral margin there is on either side a short impressed line perpendicular to the base, and sometimes a similar line situated nearly opposite, perpendicular to the front margin. *Scutellum* triangular, with apex rounded. *Elytra* very slightly broader at base than prothorax, punctate-striate, the striæ being irregular, sometimes more so and sometimes less. *Underside*: anterior coxal cavities closed behind; abdominal sternites generally punctate and covered with fine hairs; posterior femora thickened but not considerably, and this is in harmony with the insect's feeble power of jumping; tibiæ almost as long as the femora, received into a channel in the femora when in repose.

The first segment of the tarsi in the male is larger than the corresponding segment in the female. Some of the species are apterous.

Range. This genus has a wide distribution in Europe, America, Africa, and Asia.

Key to the Species.

1. Insect brown above	2.
Insect not brown above	4.
2. Entire insect, including appendages, brown.........................	*P. ceylonensis*, Jac., p. 274.
Entire insect not brown; some of the appendages at least are partly black.	3.
3. Breast and abdominal sternites (except the apex of the last) black	*P. cardoni*, Jac., p. 275.
Breast and abdominal sternites brown .	*P. badia*, Harold, p. 275.
4. Upper side bluish, in some cases diluted with brown; scutellum black; pronotum and elytra usually concolorous; underside brown	*P. semicærulea*, Jac., p. 276.

No such combination of colours; pronotum and elytra not concolorous	5.
5. Pronotum always brown or red-brown; elytra of a different colour (blue, black or green, or a mixture of these colours)	6.
6. Each elytron with eleven regular longitudinal single rows of punctures ..	*P. striatipennis*, Jac., p. 277.
Each elytron either with more or less regular double rows, or with a tendency towards such an arrangement, or with confused punctuation.	7.
7. Elytra black, with the punctuation showing a tendency towards formation of double rows	*P. nigripennis*, Jac., p. 277.
Elytra blue or green or a mixture of these colours	8.
8. Elytra blue or blue-green, with the punctuation more or less arranged in double rows	*P. bowringi*, Baly, p. 278.
Elytral punctures confused	9.
9. Surface of pronotum convex, shining ..	*P. madurensis*, Jac., p. 279.
Surface of pronotum rather flat, not shining	*P. dohertyi*, sp. n., p. 280.

195. **Podagrica ceylonensis**, *Jacoby.*

Podagrica ceylonensis, Jac., Entomologist, xxxii, 1899, p. 82.

Body ovate. Colour entirely brown.

Head: vertex convex, impunctate, separated from the eyes by oblique impressed lines, frontal tubercles obsolete, interantennal area somewhat raised. Antennæ almost as long as the body (only about one-half a millimetre shorter); first segment thickened and club-shaped, second shorter but thicker than third, the latter and the following two equal in length; from the sixth to the last the segments are slightly thicker. *Prothorax* somewhat broader than long, front and basal margins almost straight, the latter may be slightly sinuate; at each side, perpendicular to the base, is a short impressed line; sides margined, slightly rounded in front, at the anterior angles the margin is somewhat truncate, and each of the anterior and posterior angles bears a seta; surface convex, fairly closely punctate, the punctures being shallow. *Scutellum* small, triangular, with apex rounded and surface impunctate. *Elytra* broader at base than prothorax, punctate-striate; on each elytron there are eleven rows of punctures, including a scutellar row and an extreme marginal row, the punctures themselves being shallow; interstices somewhat raised. *Underside* smooth, shining; prosternum narrow and elongate; abdominal sternites sparsely hairy.

Length, 2 mm.

CEYLON (*Thwaites*); Peradeniya, 1. x. 1913 (*F. Rutherford*).

Type in the British Museum.

196. **Podagrica cardoni**, *Jacoby.*

Nisotra cardoni, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 125.

Shining testaceous; the four basal segments of the antennæ testaceous; the seven terminal segments, the breast and abdomen black; last abdominal sternite fulvous at the apex; mandibles black at the apex.

Head with vertex convex and impunctate, clypeus separated by oblique impressed lines, face broad, impunctate. Antennæ rather robust, reaching a little distance beyond the base of the pronotum; first segment long and club-shaped, second shorter but thicker than third, which is more slender and almost equal to the fourth in length; from the fifth to the end the segments become slightly thicker and more hairy. *Prothorax* broader than long, sides straight at the base, slightly rounded at the middle, anterior angles thickened, each of the anterior and posterior angles having a seta-bearing pore; surface, seen under a high power, very minutely punctate; at each side, perpendicular to the basal margin (not the anterior margin, as Jacoby incorrectly writes), are two longitudinal impressions, close to each other; perpendicular to the anterior margin, at each side, is a long, rather curved, longitudinal impression. *Scutellum* triangular with apex rounded and surface impunctate. *Elytra* convex, not much rounded at apex, broader at base than prothorax, punctate-striate; on each elytron the punctuation is as follows: first, a double scutellar row of punctures, then follow eight double rows, after that there is a single row, the interstice next to it being very broad at the base, and, finally, there is the extreme marginal row; the punctures of the double rows are irregularly arranged, and the interstices towards the lateral margin are very slightly convex; humeri convex and impunctate. *Underside*: legs robust; prosternum elongate, with a lateral ridge; abdominal sternites finely punctate and sparsely hairy.

Length, 4 mm.

BENGAL: Mandar (*Cardon*).

Type in the British Museum.

197. **Podagrica badia**, *Harold.*

Nisotra badia, Har., Col. Hefte, xvi, 1876, p. 230.

Body ovate, rather narrowed towards the apex. Colour entirely brown, except the seven apical joints of the antennæ, the apices of the tibiæ, and the tarsi, which are black or piceous.

Head: vertex not very convex, impunctate, limited by two oblique impressed lines; eyes convex; interantennal space without any ridge. Antennæ long, but somewhat shorter than the length of the body; first segment long and club-shaped, second, third, and fourth almost equal in length, fifth slightly longer and thicker than each of the preceding three segments, sixth and each of the following equal to the fifth, the last segment pointed. *Prothorax*

broader than long, sides slightly rounded at the middle and narrowed in front; at the anterior angles the margin is expanded, ending in an acute point; each of the anterior and posterior angles bears a seta situated in a pore; basal margin slightly sinuate; surface uniformly convex and, seen under a high power, extremely minutely punctate; perpendicular to the anterior margin, on either side, is a longitudinal impression, but perpendicular to the posterior margin there is no corresponding impression. *Scutellum* triangular, with apex not very rounded and surface, seen under a high power, shagreened. *Elytra* slightly broader at base than prothorax; on each elytron the arrangement of the rows of punctures is as in *P. cardoni*, but the punctures are so feeble as to be almost indistinguishable; last interspace broad at base, as in *P. cardoni*. *Underside* shining; abdominal sternites thickly punctate. The males are smaller than the females and have the first segment of all the tarsi much enlarged.

Length, $3\frac{1}{2}$–$4\frac{1}{4}$ mm.

Ceylon: (*Nietner*); 1872 (*Thwaites*); Kandy, vi. 1900 (*G. E. Bryant*), and 1546–1727 ft., 17–23. ii. 1882 (*G. Lewis*); Balangoda, 1776 ft., 3–16. iii. 1882 (*G. Lewis*).

Type possibly in Mons. Oberthür's collection. There are many specimens in the British Museum.

198. **Podagrica semicærulea**, *Jacoby*.

Nisotra semicærulea, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 109.

Colour above bluish, in some cases much diluted by brown; elytra and pronotum usually, but not always, concolorous; underside and antennæ fulvous; scutellum blackish.

Head rather long, impunctate, impressed with an oblique line above the eyes, frontal tubercles absent. Antennæ with basal segment long and club-shaped, second small, nearly one-half the length of the first, the third and the two following segments equal; from the sixth to the last the segments are slightly thickened. *Prothorax* twice as broad as long, sides rounded before the middle; each of the anterior angles has a seta-bearing pore; on each side, from the front margin, rises a deep, short, incurved and perpendicular impression, within which are three deep pits; surface very finely and rather closely punctate; posterior margin sinuate at each side. *Scutellum* triangular, smooth and impunctate. *Elytra* broader at base than prothorax, narrowed but rounded at apex, punctate in closely approximated double or treble rows; the rows are more or less confused, but follow the general plan stated in the description of *P. cardoni*. *Underside*: tarsal segments feeble, claws appendiculate.

Length, 4 mm.

Nilgiri Hills.

Type in the British Museum.

199. **Podagrica striatipennis,** *Jacoby.*

Podagrica (Nisotra) striatipennis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 268.

Body oblong, parallel-sided, pointed behind. Fulvous; elytra metallic blue; the four basal segments of the antennæ brown; from the sixth to the last the segments are black; breast and abdomen (except the last sternite) more or less black.

Head with vertex convex and impunctate, frontal tubercles obsolete, clypeus transversely raised. Antennæ extending a little beyond the base of the pronotum, robust; first segment much thickened and large, second shorter but thicker than third, the latter and the two following segments equal; from the sixth to the last the segments are thickened. *Prothorax* a little less than twice as broad as long, sides much rounded, anterior lateral angles thickened, posterior margin slightly sinuate on either side, its median lobe rounded and but little produced; on either side, nearer to the hind angle than to the median lobe, is a deep but short impression perpendicular to the base, while behind either eye, and perpendicular to the anterior margin, there is also a short but deep impression; each of the anterior and posterior lateral angles bears a fine seta; surface rather convex, very finely and rather closely punctate. *Scutellum* small, triangular, and impunctate. *Elytra* hardly broader at the base than the prothorax, nearly parallel-sided, pointed at the apex; very strongly and rather regularly punctate-striate, each elytron having about eleven rows of punctures, including a short scutellar and an extreme marginal row; intervals finely and closely punctate. *Underside*: legs robust.

Length, $3\frac{1}{2}$–4 mm.

BOMBAY: Belgaum.

Type in the British Museum.

200. **Podagrica nigripennis,** *Jacoby.*

Podagrica (Nisotra) nigripennis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 109.

Body very convex, pointed behind. Colour black; the four basal segments of the antennæ, the head, prothorax, prosternum, and legs fulvous.

Head impunctate, frontal tubercles oblique, rather small, inter-antennal carina flat and short. Antennæ only about one millimetre shorter than the length of the body; first segment long and club-shaped, second slightly shorter than third, fourth equal to third; from the fifth to the last the segments are more elongate and slightly thicker. *Prothorax* about twice as broad as long, convex, sides rounded, anterior angles distinct and thickened, each having a seta-bearing pore; on each side, perpendicular to the front margin, is a longitudinal, short, and deeply

impressed line; surface, seen under a high power, shallowly punctate. *Scutellum* triangular, smooth, and impunctate. *Elytra* narrowed and pointed towards the apex; shoulders bounded by a depression within; surface very finely and closely punctate, the

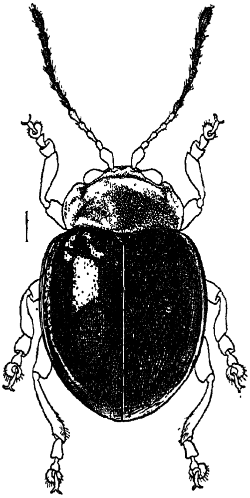

Fig. 102.—*Podagrica nigripennis*, Jac.

punctures sometimes arranged in irregular double rows. *Underside*: epipleura of elytra broad and convex: prosternum elongate; first segment of the anterior and middle tarsi of the male dilated; claws appendiculate.

Length, 4 mm.

NILGIRI HILLS.

Type in the British Museum.

201. **Podagrica bowringi**, *Baly*.

Nisotra bowringi, Baly, Trans. Ent. Soc. Lond. 1876, p. 584; Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 196.

Colour blue or blue-green of varying shades; underside, scutellum, and the seven apical segments of the antennæ piceous; legs, prothorax, and head light brown to dark brown; eyes black.

Head with vertex convex; visible from above there are two oblique impressed lines, meeting in front and each touching the posterior edge of the eye; the depth of these impressions varies; interantennal space uneven. Antennæ passing beyond the base of the pronotum and nearly reaching the middle of the elytra; first segment long, club-shaped, second segment longer than third, the latter elongate, slightly longer than the fourth or the fifth,

which are almost equal in length; from the fifth to the last the segments become slightly thicker and sparsely covered with hair. *Prothorax* broader than long, sides gently rounded, anterior angles slightly expanded, posterior almost right angles; on each side is a short longitudinal impressed line perpendicular to the anterior margin, the impression containing a few pits; surface gently convex, minutely and more or less closely punctate. *Scutellum* broad, small, triangular, smooth and impunctate. *Elytra* slightly broader at base than prothorax; each elytron has nine pairs of longitudinal rows of punctures, which vary in depth; interstices minutely punctate, in some cases the interstitial punctures are more numerous than in others. *Underside* smooth, shining; abdominal sternites sparsely covered with hairs.

Length, $3\frac{1}{2}$-4 mm.

Hong Kong (type-locality). Assam: Patkai Mts.; Sadiya. Burma: Momeik (*Fea*); Karen Mts. (*Fea*); Teinzo (*Fea*); Toungoo. Andaman Islands (*Captain Wimberley*). Nicobar Islands (*Roepstorff*). South India: Trichinopoly, 25. viii. 1908 (Pusa Coll.); Malabar.

Type in the British Museum.

I have before me a large number of specimens from various localities, extending from Hong Kong to Malabar. They vary in size, but otherwise I cannot find any substantial difference to justify grouping this long series of individuals into different species. I am inclined to think that they are one species, very widely distributed, the examples of which vary somewhat in size and other minor points according to the regions they inhabit.

202. Podagrica madurensis, *Jacoby*.

Nisotra madurensis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 267.

Body rounded and convex. Colour of abdomen and breast black; head, the four basal segments of the antennæ, scutellum, thorax, and legs fulvous; elytra dark blue; the six apical segments of the antennæ black.

Head with vertex convex, impunctate, without distinct frontal elevations; clypeus rather broad, scarcely separated. Antennæ extending beyond the base of the pronotum, but not reaching the middle of the elytra; first segment long and club-shaped, second shorter than third, fourth and fifth slender, equal; from the sixth to the last the segments are slightly thickened. *Prothorax* a little less than twice as broad as long, sides rather strongly rounded before the middle, straight at the base, anterior lateral angles produced obliquely outwards; anterior margin at each side with a very deep and short perpendicular impression, containing a few pits; surface, seen under a high power, perceptibly and rather sparingly punctate; posterior margin broadly produced at the middle. *Scutellum* triangular with apex rounded, impunctate. *Elytra* strongly rounded, convex, very finely and closely punctate,

the punctures near the lateral margin fairly regularly arranged in rows. *Underside*: epipleura of elytra broad, transversely wrinkled. In the male the first segment of the front and middle tarsi is dilated.

Length, $4\frac{1}{4}$ mm.

MADRAS: Madura; Nilgiri Hills.

Type in the British Museum.

203. **Podagrica dohertyi**, sp. nov.

Elytra blue; thorax, the four basal segments of the antennæ and the legs red-brown; underside piceous; the seven apical segments of the antennæ black.

Head: vertex convex, impunctate, bounded in front by two oblique impressed lines, which converge in front; interantennal space without any ridge. Antennæ reaching the middle of the elytra; first segment thickened, club-shaped, second slightly shorter than third, fourth slightly shorter than third, fifth almost equal to fourth; from the sixth to the last the segments are slightly thickened and sparsely covered with whitish hairs. *Prothorax* broader than long, sides gently rounded, anterior angles slightly expanded, posterior almost right angles; on each side is an impressed line perpendicular to the front margin; surface rather flat, not shining, uniformly, closely, and minutely punctate. *Scutellum* triangular, piceous, smooth, and impunctate. *Elytra* slightly broader at base than prothorax, closely and confusedly punctate. *Underside* smooth; abdominal sternites sparsely covered with hair; claws appendiculate.

Length, 4 mm.

BURMA: Ruby Mines (*Doherty*); Sadon, 4000 ft., iv. 1911 (*E. Colenso*, Indian Museum).

Type in the British Museum; four paratypes in the Indian Museum.

Described from nine examples, in which the pure blue colour of the elytra is constant.

Genus **PHÆLOTA**, *Jacoby*.

Phælota, Jac., Proc. Zool. Soc. Lond. 1887, p. 94.

GENOTYPE: *Phælota semifasciata*, Jac.

Body ovate, convex, narrowed behind. *Head*: antennæ rather widely separated; eyes strongly convex. *Prothorax* broader than long, its upper surface without any deep impression. *Elytra* punctate-striate, interstices smooth, flat, and impunctate. *Underside*: anterior tibiæ unarmed; first segment of posterior tarsi as long as the next two segments together; claw-segment long and projecting much beyond the bilobed segment; claws with a projection on the underside at the base; prosternum broad, with its base truncate; anterior coxal cavities closed.

This genus strongly resembles *Chabria*, Jac., in its convex appearance.

Range. Ceylon.

204. **Phælota semifasciata**, *Jacoby*.

Phælota semifasciata, Jac., Proc. Zool. Soc. Lond. 1887, p. 94.

Body ovate, convex, narrowed behind. Colour shining reddish-brown, with a bronzy-blackish longitudinal stripe on each elytron; towards the base of the elytra this latter colour is usually extensively suffused and not strictly defined; the stripe lies along the outer part of the elytron, extending up to the apex, and is also ill-defined as to its boundaries; the six apical segments of the antennæ are black; surface of pronotum with obscure diffused dark patches.

Head broad, vertex convex, rather sparsely and minutely punctate, and delimited from the rest of the face, which is impunctate, by a deep transverse and irregular impression; eyes large; frontal tubercles more or less prominent. Antennæ about two millimetres shorter than the length of the body; first segment long and club-shaped, second small, slightly thicker and shorter than third, the latter and the fourth slender and almost equal, fifth thicker; from the sixth onwards the segments are thicker and opaque. *Prothorax* broader than long, convex, sides straight, slightly rounded in front, anterior and posterior margins almost straight; anterior angles thickened and slightly expanded, each with a seta-bearing pore; each of the posterior angles also has a seta-bearing pore, but is not so expanded as the anterior angles; surface rather sparsely and finely punctate. *Scutellum* broad, triangular, with apex broadly rounded and surface smooth and impunctate. *Elytra* almost as broad at base as prothorax, punctate-striate; on each elytron there are eleven rows of punctures including a short scutellar and an extreme marginal row; interstices smooth, flat and impunctate, that between the ninth and the extreme marginal rows is the broadest; the extreme marginal row is situated in a deeply impressed line. *Underside* smooth, impunctate, shining, glabrous.

Length, $5\frac{1}{4}$ mm.; *breadth*, 3 mm.; *length of antenna*, $3\frac{1}{4}$ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **APHTHONELLA**, *Jacoby*.

Aphthonella, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 204.

GENOTYPE, *Aphthonella bhamoensis*, Jac.

Body oblong-ovate; antennæ filiform. Prothorax broader than long, without any antebasal transverse furrow. Elytra punctate-striate. On the underside the following three characters will

distinguish this genus from others: (1) the anterior coxal cavities are closed behind, (2) the first segment of the posterior tarsi is longer than the two following segments together, (3) the claws are appendiculate.

The general appearance of the insect is that of an *Aphthona*, but it is distinguished by having the elytra regularly punctate-striate, and the anterior coxal cavities closed. From *Aphthonoides*, Jac. (1885; Sumatra, Japan), this genus differs in the long first segment of the posterior tarsi.

Range. Burma.

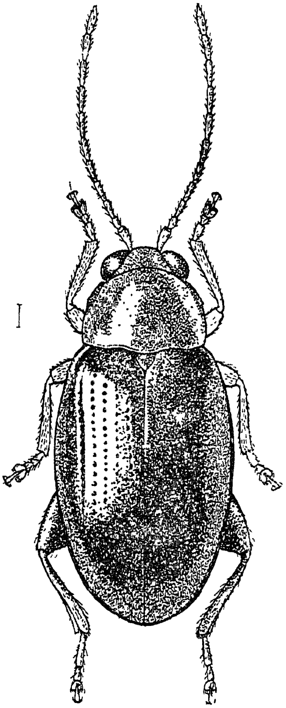

Fig. 103 —*Aphthonella bhamoensis*, Jac.

205. **Aphthonella bhamoensis**, *Jacoby*.

Aphthonella bhamoensis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 204.

Body ovate. Colour of head, antennæ, prothorax, front and middle legs shining yellow-brown (the prothorax rimmed all round with black); posterior tarsi and apices of posterior tibiæ pitch-brown; rest of the body shining black.

Head with vertex convex, smooth and impunctate, frontal elevations present but not very prominent; eyes strongly convex. Antennæ somewhat shorter than the length of the body; first segment long and club-shaped, second small, shorter and stouter than third, fourth almost equal to third; from the fifth onwards the segments are somewhat longer and more hairy. *Prothorax* a little broader than long, sides rounded, anterior angles obliquely truncate, posterior angles rounded; surface convex, minutely and sparsely punctate. *Scutellum* small, triangular, impunctate, with apex broadly rounded. *Elytra* broader than prothorax, punctate-striate, each elytron having eleven rows, including a scutellar and an extreme marginal row; punctures of the rows near the suture rather irregularly arranged; interstices flat. *Underside* smooth, shining; prosternum broad, closely studded with large pits; anterior coxal cavities closed behind; posterior femora strongly incrassate; posterior tibiæ longer than either the front or the middle pairs, channelled on the upper side and broadened at the apex, where there is a series of small spinules on each side; first segment of the posterior tarsi almost as long as the three following segments together; claws appendiculate.

Length, 3 mm.

BURMA: Bhamo, vi. 1886 (*L. Fea*).

Type in the Genoa Museum.

SECTION III: SUBSECTION IV.

Pronotum and elytra not pubescent; claw-segment of hind tarsus not greatly dilated; front coxal cavities open behind.

1. In front of, and parallel to, the base of the pronotum is a shallow or deep impression	20.
No such ante-basal impression on the pronotum	2.
2. Small insects ($2\frac{1}{4}$ mm. long.); elytron with an obliquely longitudinal humeral ridge	PSEUDAPHTHONA, Jac., [p. 286.
Elytron with no such ridge	3.
3. All the tibiæ short, somewhat curved, the front pair with a broad emargination on the outer edge nearer the apex	PENTAMESA, Harold, p. 288.
Tibiæ not so constructed	4.
4. Posterior tibiæ with a broad apical projection or spur ending in two principal points	5.
Posterior tibiæ without any such double-pointed spur	7.
5. Eyes large and nearly contiguous, separated only by a thin strip	PARADIBOLIA, Baly, p. 294.
Eyes not nearly contiguous	6.

6. Antennæ relatively long, with the third segment short .... ARGOPISTES, Motsch., [p. 296.
   Antennæ comparatively short, with the third segment the longest .... ARGOPISTOIDES, Jac., [p. 301.
7. Elytra regularly punctate-striate, the rows being placed at an appreciable distance apart .... 8.
   Elytra confusedly and sometimes obsoletely punctate * .... 11.
8. Punctures of the elytral striæ fine; interstices absolutely flat .... 9.
   Punctures of the elytral striæ deep; interstices slightly raised .... 10.
9. Prothorax much broader than long, its base sinuate, the median basal lobe slightly produced .... JACOBYANA, gen. n., p. 302.
   Prothorax quadrate, narrowed in front, its base not sinuate; the sides of the pronotum slope down sharply in front .... LANKA, gen. n., p. 304.
10. First segment of antennæ much longer; prothorax more transverse ...... EUCYCLA, Baly, p. 305.
   First segment of antennæ not so long; prothorax less transverse .... THRYLÆA, Jac., p. 307.
11. Antennæ widely separated at their bases, which almost touch the inner margins of the eyes.............. 12.
   Antennæ not so widely separated; their bases, though not contiguous, are well away from the inner margins of the eyes .... 13.
12. Small ovate insects (2 mm. long); antennæ nearly half the length of the body .... AMPHIMELOIDES, Jac., [p. 309.
   Larger insects ($3\frac{1}{2}$ mm. long, 2 mm. broad); antennæ short, not reaching beyond the base of the pronotum .. PARATHRYLEA, Duviv., [p. 310.
13. Posterior tibiæ cylindrical (at most flattened a little dorsally at the apex), their upper surface not channelled; body convex, very finely and obsoletely punctate .... CHABRIA, Jac., p. 312.
   Posterior tibiæ with their upper surface either flat or slightly channelled near the apex .... 14.
   Posterior tibiæ deeply channelled .... 19.
14. Body hemispherical; first segment of the posterior tarsi normal, *i. e.*, very much shorter than the tibia ...... 15.
   Body elongate or ovate; first segment of the posterior tarsi longer in comparison with the tibia........ 16.

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* In some genera there may be a tendency of the punctures to form rows, but irregularly, and the interstices are usually filled with confused punctures.

15. Prosternum large and elevated; mesosternum arched; labrum large .... SPHÆRODERMA, Stephens, [p. 316.
Prosternum narrowly elongate; mesosternum strongly transverse, widened at the middle; labrum normal IVALIA, Jac., p. 330.
16. First segment of posterior tarsi very long, almost as long as, or at any rate never less than half the length of, the tibia .... LONGITARSUS, Latr., p. 333
First segment of posterior tarsi always less than half the length of the tibia .... 17.
17. Second and third segments of the antennæ always small; posterior edge of elytra sparsely set with very short hairs .... LUPEROMORPHA, Weise, [p. 361.
No such combination of characters .. 18.
18. Posterior tibiæ depressed at the apex, which is divided into two very short lobes, each usually ending in a short spinule .... APHTHONA, Chevr., p. 366.
Posterior tibiæ not depressed at the apex, which is rounded and furnished with a small spinule placed in the middle of the terminal border .... PHYLLOTRETA, Foudras, [p. 377.
19. Small ovate insects (3 mm. long), with the lateral borders of the pronotum not dilated or margined (except at the anterior angle).............. MORYLUS, Jac., p. 381
Much larger, elongate insects (more than 3 mm. long), with the lateral borders of the pronotum narrowly dilated or margined .... SEBÆTHE, Baly, p. 382.
20. Elytral punctures regularly arranged in longitudinal lines .... 21.
Elytral punctures not so arranged.... 23.
21. Body constricted at the junction of elytra and prothorax, pointed at the apex of the elytra; antennæ longer than the body .... ALYTUS, Jac., p. 404.
No such combination of characters .. 22.
22. Elytral rows of punctures very fine .. PHILOGEUS, Jac., p. 405.
Elytral rows of punctures very deep and larger .... MANOBIA, Baly, p. 407.
23. Body cylindrical, prothorax quadrate; posterior tibiæ short, broadened towards the apex, and channelled; first segment of posterior tarsi as long as the following two together. TEGYRIUS, Jac., p. 409.
No such combination of characters .. 24.
24. Small insects (2–3 mm. long); antennæ slender, second segment stouter than, but otherwise almost equal to, third, fourth shorter than third .... HERMÆOPHAGA, Foudras, [p. 411.

Larger insects; antennæ stout, second and third segments of equal thickness	25.
25. Third and fourth segments of antennæ almost equal to each other in length.	26.
Fourth segment distinctly longer than third	27.
26. Ante-basal transverse impression on pronotum shallow	PHYGASIA, Baly, p. 412.
Ante-basal impression deep	HALTICA, Fabr., p. 418.
27. Ante-basal impression on pronotum very close to the basal margin, not bounded on either side by a short longitudinal impression..........	PARLINA, Motsch., p. 424.
Ante-basal impression bounded on either side by a short longitudinal impression	LACTICA, Erichs., p. 426.

Two genera, viz., *Mniophila*, Stephens (p. 428), and *Argopus*, Fischer (p. 429), containing insects of doubtful position from our regions, are not included in the above key.

Genus PSEUDAPHTHONA, *Jacoby*.

Pseudaphthona, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 104.

GENOTYPE, *Pseudaphthona humeralis*, Jac.

Body oblong. Antennæ thickened towards the apex. Palpi robust. *Prothorax* subquadrate, without ante-basal sulcus, the anterior angles oblique. *Elytra* irregularly punctured, and having an oblique longitudinal humeral ridge. Prosternum twice as long as broad, longitudinally sulcate; anterior coxal cavities open.

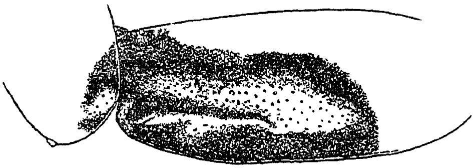

Fig. 104.—*Pseudaphthona humeralis*, Jac.; part of prothorax and elytron, to show the humeral ridge of the latter.

Tibiæ dilated in front, sulcate, the anterior and intermediate pairs unarmed, the posterior with a spine. Posterior femora thickened. Claws appendiculate.

Allied to *Aphthona*, but separated by the unarmed anterior tibiæ, which are also distinctly dilated, and by the elongate and sulcate prosternum. The following species cannot be referred to Weise's genus *Luperomorpha*, in which the second and third segments of the antennæ are extremely small and the elytra finely

pubescent behind; nor does Weise mention any dilatation of the apical segments of the antennæ, or say whether the anterior tibiæ are armed or not.

Range. India.

206. **Pseudaphthona humeralis,** *Jacoby.*

Pseudaphthona humeralis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 104.

Colour above metallic dark blue; underside and antennæ black. *Head* with vertex impunctate, frontal elevations distinct, triangular. Antennæ extending to about half the length of the

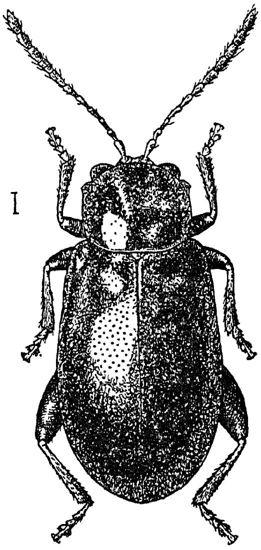

Fig. 105.—*Pseudaphthona humeralis,* Jac.

elytra; first segment thickened, second segment one-half shorter than first, third, fourth, and fifth each only slightly longer than second; from the sixth to the end the segments become gradually thicker. *Prothorax* almost as broad as long, sides very feebly rounded, front and basal margins straight, anterior angles oblique, slightly expanded, each of the anterior and posterior angles having a seta-bearing pore; surface transversely convex, sparingly punctate. *Elytra* but little wider at base than prothorax, subcylindrical, rounded at the apex; a little behind the basal margin there is a rather deep transverse depression across each elytron; surface strongly and closely punctate, less strongly towards the

apex: shoulders strongly raised, with an acute and oblique longitudinal ridge extending to the middle of the elytron. The underside is sparingly hairy.

In the male the tibiæ and tarsi are more strongly dilated and the elytral ridge is less prominent than in the other sex.

Length, 3 mm.

NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

Genus **PENTAMESA**, *Harold*.

Pentamesa, Harold, Col. Heft. xv, 1876, p. 124.

GENOTYPE, *Pentamesa duodecimmaculata*, Harold.

Body convex, subhemispherical. *Head* broad; eyes convex, prominent; the surrounding area depressed, frontal tubercles developed, interantennal space broad. Antennæ extending to about the middle of the elytra, third and fourth segments more slender than the others. *Prothorax* almost quadrate, without any ante-basal furrow; basal margin gently sinuate, with a central lobe. *Scutellum* small, narrow. *Elytra* hardly broader at base than prothorax, confusedly punctate. *Underside*: prosternal process broad, flat, truncate behind; anterior coxal cavities open behind; mesosternum pentagonal, emarginate behind; all the femora thickened, the posterior pair rather more strongly incrassate; tibiæ short, broadened towards the apex, bent and deeply sulcate on the outer side (the front pair also broadly emarginate on the outer side near the apex), all armed with a short spine at the apex; claws appendiculate.

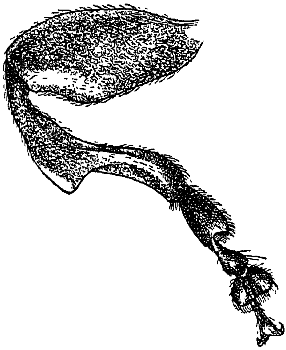

Fig. 106.—*Pentamesa duodecimmaculata*, Harold; front leg of male

Range. India, Indo-China.

Fig, 107.—*Pentamesa duodecimmaculata,* Harold; middle leg of male.

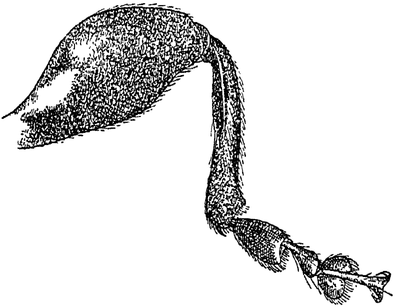

Fig. 108.—*Pentamesa duodecimmaculata,* Harold; hind leg of male.

Key to the Species.

1. Elytra black with bluish-green sheen, and with brownish-yellow patches ..	2.
Elytra brown or somewhat lighter, with black patches	*P. duodecimmaculata,* [Harold, p. 290.
2. Pronotum reddish-brown	*P. haroldi,* Baly, p. 291.
Pronotum black, with brownish-yellow patches or bands	3.
3. Pronotum with three longitudinal stripes, one median and two lateral ..	*P. trigrapha,* sp. n., p. 292.
Pronotum with two lateral stripes and two median patches, one basal and the other apical	*P. cribellata,* Weise, p. 293.

207. **Pentamesa duodecimmaculata**, *Harold.*

Pentamesa duodecimmaculata, Harold, Col. Heft. xv, 1876, p. 124; Baly, Cist. Ent. ii, 1879, p. 443.
Pentamesa generosa, Weise, Deutsch. Ent. Zeitschr. 1895, p. 332.
Pentamesa subfasciata, Weise, *t. c.* p. 333.

Generally dark brown, with the elytra sometimes very light; in the latter case the suture and edges are dark brown. The following patches on the pronotum and elytra are black: on the pronotum, two large more or less rounded patches, one on each side of the longitudinal middle line; on each elytron, two large

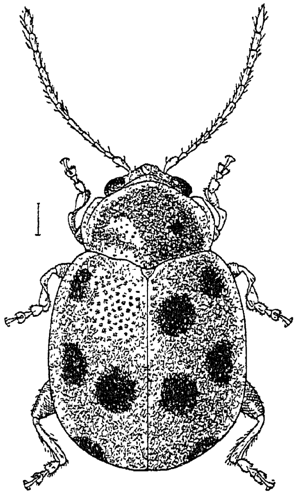

Fig. 109.—*Pentamesa duodecimmaculata*, Harold.

more or less rounded patches side by side occupying the basal part, across the middle portion two similar patches and, near the apex, one large patch; the two patches across the median part sometimes coalesce and form a transverse band, but there are transitional stages in which they retain their round contour, yet meet each other by throwing out each a narrow projection; in some cases the first, or basal, pair also show a tendency to coalesce, and in other examples they are actually joined; the size of the patches also varies. In many cases, in a suitable light, a very faint purplish or bluish tint may be observed on the black patches. Underside, or sometimes only the breast, piceous. Scutellum dark brown to pitch-black.

Head broad, with vertex impunctate; interocular space depressed and rough; the frontal tubercles, which are broad and

transversely placed, are delimited by deeply impressed channels; the interantennal space is similarly raised as a result of being surrounded by these deep channels; eyes also on a raised surface; mouth-parts somewhat exserted, labrum broader than long. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second small, thicker but shorter than third, fourth somewhat longer than third; from the fifth the segments are very slightly thickened and about equal, the last being truncate and pointed. *Prothorax* broader than long, front margin widely sinuate, hind margin very feebly bisinuate on each side, sides gently rounded, anterior lateral angles somewhat thickened, each of the four corners with a small fine seta; surface strongly punctate, the punctures generally more crowded towards the base and sides; there is a certain amount of variation in the punctuation of the pronotum, in some specimens the punctures are finer and generally sparser, while in others they are stronger. *Scutellum* small, triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, strongly and confusedly punctate, the punctures being usually stronger than those on the pronotum. *Underside* covered with fine hairs.

In the male the pronotum appears to be not much broader than long, and the front tibiæ have a wide emargination at the apex.

Length, normally $4\frac{1}{2}$–5 mm., but it can reach 6 mm., as recorded by Harold.

INDIA (type-locality). I have before me a large series of examples from various localities as follows:—ASSAM: (*W. F. Badgley*); Shillong (*F. W. Champion*). BURMA: N. Chin Hills. UNITED PROVINCES: Almora, Sunderdhunga Valley, 8,000–12,000 ft., vi. 1919 (*H. G. Champion*); Kumaon, Naini Tal Division, ix. 1918 (*H. G. Champion*). SIKKIM: Rungbong Valley, Gopaldhara (*H. Stevens*).

The location of the *type* of *P. duodecimmaculata* is unknown to me.

In the British Museum there are examples of *P. generosa*, Weise, and *P. subfasciata*, Weise, from the Himalayas. After comparing these with the many specimens of *P. duodecimmaculata* before me, I am of opinion that they are all the same species.

208. **Pentamesa haroldi**, *Baly*.

Argopus haroldi, Baly, Trans. Ent. Soc. Lond. 1876, p. 439; Weise, Deutsch. Ent. Zeitschr. 1895, p. 332.
Pentamesa guttata, Weise, *t. c.* p. 334.

Body subhemispherical. Head, antennæ, prothorax, and legs red-brown; underside piceous to black, sometimes the distal parts of the abdominal sternites are brown; elytra black with a bluish-green shimmer, with the sides all round and the suture narrowly red-brown; each elytron with six round yellow patches disposed

as follows: one on the middle of the basal part, two lying side by side before the middle, two lying side by side behind the middle, and one near the apex; in some cases there are indistinct black marks on the pronotum; scutellum pitch-brown.

Head broad, with vertex impunctate, frontal tubercles round and well-developed, interantennal area broadly raised. Antennæ hardly extending to the middle of the elytra; first segment long and club-shaped, second thicker but not shorter than third, fourth slightly longer than third, fifth about equal to fourth; from the sixth the segments are gradually but slightly thickened. *Prothorax* broader than long, sides rounded, slightly margined, anterior lateral angles thickened, basal margin gently sinuate at each side, with a broadly rounded median lobe; surface smooth, convex, sparsely punctate, the punctures being strongly impressed and more crowded near the base and sides than elsewhere. *Scutellum* small, triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, closely, confusedly, and strongly punctate, the punctures being stronger than those on the pronotum, and less crowded on the yellow spots than on the surrounding surface. *Underside*: upper surface of middle tibiæ broad with somewhat raised margins, which are elevated into broad processes at the apex.

In the male the front tibiæ are bent and emarginate at the apex.

Length, 5 mm.

INDIA (type-locality). HIMALAYAS (*Andrewes*). DARJEELING (*Hauser*).

Type of *P. haroldi* in the British Museum.

There are in the British Museum two examples from the Hauser Collection, which were described by Weise as *Pentamesa guttata*, but I think the latter is identical with *P. haroldi*.

209. **Pentamesa trigrapha**, sp. nov.

Head, antennæ, and legs brown. Prothorax, elytra, and underside black; elytra with a bluish-green shimmer. On the pronotum there are three brown longitudinal stripes, one median and one along each lateral margin; the median stripe is somewhat broadened at base and apex, and the lateral bands are somewhat broadened in front. Each elytron has six more or less rounded brownish-yellow patches, which are disposed as follows: one basal, two lying transversely before the middle, two others similarly placed behind the middle, and one, of a somewhat triangular shape, near the apex. Epipleura brownish-yellow, and all the margins of the elytra very finely edged with brown. Scutellum brownish. Bases of posterior femora blackish. The whole insect is slightly shining, more so on the underside.

Head with vertex impunctate, smooth, front with a few scattered deep punctures, frontal tubercles and interantennal elevation well-developed. Antennæ extending to about the

middle of the body; first segment long and club-shaped, second small, thicker than third, fourth somewhat longer than third; from the fifth the segments are somewhat thickened. *Prothorax* broader than long, sides rounded and margined, anterior lateral angles thickened; surface thickly punctate with deeply impressed as well as comparatively finer punctures; the lateral yellow-brown areas appear to be slightly raised. *Scutellum* small, triangular, with apex rounded and surface impunctate. *Elytra* hardly broader at base than prothorax; surface confusedly, closely, and thickly punctate, the punctures on the brownish-yellow patches less strong and close than on the black parts of the surface; along the margin is a raised impunctate strip enclosed between two rows of punctures. *Underside* covered with fine hairs. Legs as in the description of the genus.

Length, 4½ mm.

SIKKIM: Mungphu (*Atkinson*).

Type in the British Museum. Described from one example.

210. **Pentamesa cribellata**, *Weise.*

Pentamesa cribellata, Weise, Deutsch. Ent. Zeitschr. 1895, p. 335.

Head brown. Prothorax and elytra black; along each lateral margin of the pronotum is a reddish-brown stripe, which is gently broadened in front and has a longitudinal dark streak before the middle; there are two other reddish-brown patches on the pronotum, a half-oval patch in the middle of the front margin, and a transverse streak bordering the base in front of the scutellum. The black colour of the elytra has a bluish shimmer, and on each elytron there are six yellow-brown patches: the first, at the base, is transverse, extending from the middle to the lateral margin but narrowed outwardly through the elevation of the humerus; the second and third, strongly transverse, lie side by side before the middle, the former extending to the lateral margin and the latter to the suture; the fourth and fifth patches do not lie side by side, though they are postmedian, the former, roughly triangular in shape, is situated on the lateral margin, while the fifth, which is four-sided and twice as broad as long, is situated inwardly and a little more in front; the distance between the fifth patch and the suture is short; the sixth patch is round and near the apex of the elytron. Breast and abdomen black. Epipleura brown.

Head with front finely rugulose-punctate, frontal tubercles and interantennal elevation pubescent. *Prothorax*: upper side strongly, closely, and uniformly punctate. *Elytra* strongly, closely, and confusedly punctate, much as is the pronotum; along the lateral margin is a raised strip, somewhat broader in front and extending to the apical yellow-brown patch; the surface of the yellow-brown patches is as closely punctate as the black background.

In the male the front and middle femora are toothed, while the front tibiæ are bent and broadly and deeply emarginate at the apex.

Length, 6 mm.

SIKKIM (*Hauser*).

Type probably in the Berlin Museum.

I have not seen the type of this species, but it has sufficiently characteristic markings and structures to make identification from the description certain. The above description is adapted from the original in Latin and German.

Genus **PARADIBOLIA**, *Baly*.

Paradibolia, Baly, Trans. Ent. Soc. Lond. 1875, p. 31.

GENOTYPE, *Paradibolia indica*, Baly.

Body ovate. *Head* short, inserted into the prothorax; antennæ filiform; eyes more or less kidney-shaped, large, situated on the vertex and almost contiguous, separated only by a thin strip; frontal tubercles distinct. *Prothorax* much broader than long, strongly convex, with no ante-basal furrow. *Scutellum* triangular with apex pointed. *Elytra* broader at base than prothorax, finely punctate-striate; the whole surface is extremely finely rugose. *Underside*: anterior coxæ transverse, their cavities open behind; prosternum broad, convex in front, slightly constricted in the middle and slightly broadened behind, and covered with hair; mesonotum oblique with the margin emarginate; posterior femora strongly incrassate; anterior and middle tibiæ without spines at their apices; posterior tibiæ channelled on the dorsal side, with a large process at the apex; the process itself is broad and large, its apex being emarginate and each side of the emargination ending in a rather sharp point. The articulation of the tarsus is not at the apex of the tibiæ, and the claws are appendiculate.

Range. India.

Key to the Species.

Smaller; shining blue-green above, with antennæ fuscous	*P. indica*, Baly, p. 294.
Larger; pure metallic blue above, with the four basal segments of the antennæ, the whole of the front and middle legs, and the hind tibiæ and tarsi, bright yellow-brown	*P. nila*, sp. n., p. 296.

211. **Paradibolia indica**, *Baly*.

Paradibolia indica, Baly, Trans. Ent. Soc. Lond. 1875, p. 31.

Body subrotund, convex. Upper surface metallic shining blue-green; underside and antennæ brown, the distal segments of the latter, especially, more fuscous. Apices of hind femora piceous.

Head small, rounded, completely buried in the prothorax; front narrow, wedge-shaped, with surface finely punctate; frontal tubercles and carina distinct. Antennæ comparatively short, passing to a little distance beyond the base of the pronotum; first segment long and club-shaped, second short, almost as long as third, which is more slender, fourth, fifth, and sixth elongate, almost equal; from the seventh onwards the segments are slightly shorter. *Prothorax* much broader than long, narrowed in front, convex, basal margin slightly sinuate, sides straight but oblique, margin thickened at the anterior angles, the latter and the posterior

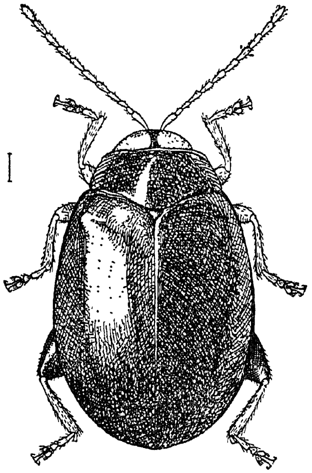

Fig. 110.—*Paradibolia indica*, Baly.

angles each having a seta-bearing pore; surface finely and transversely strigose, the strigæ radiating from the longitudinal middle line towards the sides. *Scutellum* triangular, with base slightly emarginate, apex acute and surface bearing a few minute punctures, which can be seen under a high power. *Elytra* broader than prothorax, punctate-striate, the striæ being placed in faint furrows; the punctures themselves are very indistinct, and besides this the whole of the surface is finely rugose. *Underside*: abdominal sternites sparsely covered with fine hairs; parts of the hind femora and legs generally similarly covered with hairs; otherwise the underside is impunctate and shining.

Length, 4–4½ mm.

INDIA.

Type in the British Museum.

212. **Paradibola nila** *, sp. nov.

Very similar to *P. indica*, but larger and differing in coloration. Colour pure metallic blue; the four basal segments of the antennæ, the palpi, the fore and middle legs entirely, the tibiæ and tarsi only of the hind legs, and the abdominal sternites (except part of the first) bright yellow-brown; the seven apical segments of the antennæ fuscous.

Head entirely imbedded in the prothorax; front narrow and wedge-shaped, with surface finely punctate, frontal tubercles rounded, interantennal carina broad. Antennæ short, passing a little distance beyond the base of the pronotum, covered with fine pubescence (except the two or three basal segments); first segment long and club-shaped, second small and almost equal to, or very slightly shorter than, third, fourth elongate; from the fifth to the end the segments are almost equal. *Prothorax* much broader than long, convex, and in other respects as in *P. indica*. *Scutellum* triangular, with apex acute and surface finely shagreened. *Elytra* broader than prothorax; the whole surface is very minutely rugose, and each elytron has ten or eleven rows of fine punctures, the rows, at least some of them, having the appearance of being placed in very faint furrows. *Underside*: prosternum broad, elevated, with a median longitudinal depression and sparsely covered with fine hairs; abdominal sternites, some parts of the hind femora, and the other parts of the legs sparsely covered with fine hairs.

Length, 5 mm.; *breadth*, $3\frac{1}{2}$ mm.

NILGIRI HILLS (*G. F. Hampson*).

Type in the British Museum. Described from two examples.

It is possible to regard this insect as a variety of *P. indica*, but I doubt this after examining five examples of *P. indica* and two of the present species.

Genus **ARGOPISTES**, *Motschulsky*.

Argopistes, Motsch., in Schrenck's Reisen Amur-Lande, Col. 1860, p. 236; Chapuis, Gen. Col. xi, 1875, p. 136.

GENOTYPE, *Argopistes biplagiata*, Motsch. (Amur-land).

Body oval or round, convex. *Head* small, inclined in front; front with a little carina under the bases of the antennæ, frontal tubercles absent. Antennæ closely approximated at the base, extending a little distance beyond the base of the pronotum; first segment long and club-shaped, about equal to, or somewhat shorter than, the following three together, third segment the shortest; from the fifth the segments are gradually somewhat thickened. *Prothorax* much broader than long, slightly narrowed in front, sides sloping; no ante-basal furrow. *Scutellum* small, triangular,

* Sanskrit, "blue."

insignificant. *Elytra* hardly broader at base than prothorax, but broadening regularly behind; confusedly punctate, in some places the punctures show a tendency to form longitudinal rows, especially towards the sides. *Underside*: anterior coxal cavities open behind; legs short; posterior femora strongly incrassate; posterior tibiæ short and stumpy, not longer than the corresponding tarsi, broadening towards the apex, where there are two broad blunt spines; the posterior tarsi do not arise from the ends of the tibiæ, and their first segment is equal in length to the following two together; claws appendiculate.

Range. China, Japan, India.

Key to the Species.

1.	Upper side pitchy-black, edged with brown all round the pronotal and elytral margins	*A. lamprotes*, sp. n., p. 297.
	Coloration different	2.
2.	Elytra brown, with black spots	3.
	Elytra brown, each with a lateral longitudinal black stripe	4. [p. 298.
3.	Each elytron with two black spots....	*A. quadrimaculatus*, Jac., [p. 299.
	Each elytron with three spots triangularly arranged	*A. bistripunctata*, Duviv.,
4.	Along the lateral margins of pronotum and elytra is a continuous black stripe	[p. 300. *A. nigromarginatus*, Jac.,
	Base of pronotum broadly, and bases, suture, and sides of elytra narrowly, black	*A. nigristriga*, sp. n., p. 301.

213. **Argopistes lamprotes**, sp. nov.

Body strongly convex, rounded. Upper side shining pitchy-black; lateral edges of pronotum and elytra brown; underside rich brown.

Head with vertex, seen under a high power, extremely finely punctate; eyes very large, consequently the interocular space is narrow, but it contains a few deep pits; frontal tubercles absent, clypeus deeply concave. Antennæ extending to a certain distance beyond the base of the pronotum; first segment long and club-shaped, almost equal in length to the following three together, second thicker and longer than third, fourth also thicker and longer than third; from the fifth the segments gradually become thicker. *Prothorax* much broader than long, sides straight but oblique, anterior and posterior lateral angles rounded and each with a seta-bearing pore, front margin deeply but not uniformly concave, the middle portion being somewhat sinuate, posterior margin sinuate at each side and having a central lobe; surface closely and finely punctate, the lateral brown border being somewhat raised. *Scutellum* sharply triangular, with surface impunctate. *Elytra*: the lateral margins of the prothorax and

those of the elytra form one continuous uniform curve on each side; surface closely and confusedly punctate, but there are faint indications of seven or eight longitudinal rows on each elytron, these being more visible towards the sides than towards the suture. *Underside* covered with brownish hairs; double spine at the apex of the posterior tibia large and sharp.

Length, $3\frac{1}{2}$ mm.; *breadth*, 3 mm.

BOMBAY: Belgaum (Andrewes Coll.).

Type in the British Museum. Described from five examples.

Jacoby doubtfully referred these examples from Belgaum to *Argopistes limbatus*, Motsch., from Amur-land. I think it is more convenient to regard them as different species.

214. Argopistes quadrimaculatus, *Jacoby*.

Argopistes quadrimaculatus, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 107.

Body ovate, convex. Colour brown; each elytron with two black spots, a round spot at the base, nearer the scutellum, and

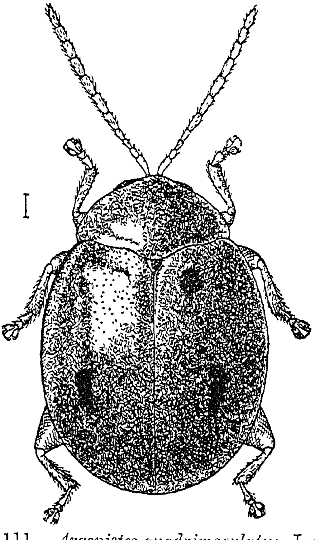

Fig. 111.—*Argopistes quadrimaculatus*, Jac.

another, more elongate and obliquely placed, at about the middle; in one example these black spots are obsolescent, though their position can be recognised.

Head with vertex impunctate, lower portion of face concave. Antennæ extending beyond the base of the pronotum, but not reaching the middle of the elytra; second segment thicker than, but about equal in length to, third, fourth longer; from the fifth

the segments are somewhat thickened. *Prothorax* strongly transverse, narrowed in front, the sides (viewed from above) rather strongly sloping, anterior lateral angles thickened, posterior margin feebly sinuate; surface minutely punctate, the interstices being not very smooth. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, sides uniformly rounded, humerus somewhat prominent, closely punctate, and scarcely more strongly so than the pronotum. *Underside*: posterior femora very strongly incrassate; posterior tibiæ very short, broadly dilated at the apex, their edges raised, and ending in a spur with two points; first segment of posterior tarsi longer than the following two together.

Length, 3 mm.

NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

215. Argopistes bistripunctata, *Duvivier*.

Argopistes bistripunctata, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 425.
Argopistes lævigata, Jac., Ann. Soc. Ent. Belg. xl. 1896, p. 264.

Body subhemispherical. Colour entirely brown; pronotum with two black spots, and each elytron with three small round spots, placed triangularly. In some specimens the black spots on the pronotum and elytra are obsolescent.

Head impunctate; eyes elongate, clypeus raised into an acute triangular ridge. Antennæ extending to a certain distance beyond the base of the prothorax; their actual length is certainly $2\frac{1}{2}$ mm. (that is, half the length of the body), though the great convexity of the body makes them appear relatively shorter; first segment long and club-shaped, second thicker and larger than third, fourth slender and longer than third; from the fifth the segments are thickened, the apical five are flattened, and the last is somewhat longer. *Prothorax* much broader than long, strongly curved, anterior lateral angles thickened, anterior margin deeply concave; posterior margin so strongly curved that the lateral margins are almost horizontal, the anterior and posterior lateral angles being two extreme points of a horizontal line on each side; posterior margin sinuate, produced into a short lobe in front of the scutellum; surface finely punctate. *Scutellum* small, triangular. *Elytra* strongly rounded, punctate; the punctures are generally confused on the inner part, but towards the sides there is a tendency to form rows, one well-formed row demarcating the expanded lateral margin, while parallel to it there may be one or two rows; the punctures are a mixture of two sizes, finer and comparatively stronger, and they also vary in depth. *Underside*: elytral epipleura broad, deeply concave; prosternum elongate; underside clothed with thick golden pubescence.

Length, 5 mm.; *breadth*, 4 mm.

BOMBAY: Kanara (type-locality of *A. lævigata*). BENGAL: Mandar (*Père Cardon*, type-locality of *A. bistripunctata*). ANDAMAN ISLANDS: many specimens in the British Museum (*Captain Wimberley* and *Roepstorff*). INDO-CHINA: Laos (*Mouhot*).

Location of *type* of *A. bistripunctata* unknown to me; Mons. Severin informs me that there are no examples under this name in the Brussels Museum. *Type* of *A. lævigata*, Jac., in the British Museum.

Jacoby, when describing *A. lævigata*, was aware that Duvivier had described *A. bistripunctata*, but he differentiated the former from the latter as follows: in *A. lævigata* (1) "the antennæ extend to the base of the prothorax," (2) "the entire upper surface is without punctures or the latter are so fine as to be practically called absent," (3) "there is no trace of a double row of punctures at [*sic*] the elytra or at the sides." I have examined the type of *A. lævigata* and find that the above observations are not correct; Jacoby's error may have been due to using too low a power of magnification.

Weise erected the genus *Chilocoristes* (Deutsch. Ent. Zeitschr. 1895, p. 336) with *Argopistes bistripunctata*, Duviv., as the genotype. It is possible that this species does really belong to a distinct genus, but without examining more material I do not wish to follow Weise, and therefore propose to retain *bistripunctata* in *Argopistes*. It may be recognised, however, that *Argopistes* is a very artificial genus, at least so far as the species from our regions are concerned.

216. **Argopistes nigromarginatus**, *Jacoby*.

Argopistes nigromarginatus, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 931.

Brown; antennæ, legs, and abdomen lighter brown; base of the head black; lateral margins of prothorax black, which colour is continued along the lateral and apical margins of the elytra.

Head with vertex impunctate, face strongly deflexed. Antennæ scarcely extending beyond the base of the prothorax: second segment equal in length to third, fourth slightly longer; the terminal segments rather thickened. *Prothorax* more than twice as broad as long, strongly narrowed in front, sides straight, posterior margin very rounded, sinuate at each side; surface extremely closely and finely punctate. *Scutellum* small, triangular. *Elytra* punctate like the pronotum, the disc also with rows of piceous punctures. *Underside*: posterior tibiæ with a large double spur.

Length, $4\frac{2}{3}$ mm.

BURMA: Karen Hills, xii. (*Fea*).

Type (unique) in the Genoa Museum.

I have not seen the type of this species. The above description is adapted from the original.

217. **Argopistes nigristriga**, sp. nov.

Body ovate. General colour brown; head black; underside black, except the three apical segments of the abdomen and part of the segment in front of these, and even they are edged with black; legs brown; base of the pronotum, and basal border, sides, and sutural margins of the elytra, black; scutellum also black; the lateral black stripe on each side is not along the extreme margin, but lines the inner border of the explanate portion.

Head with vertex finely punctate; eyes large, interocular space narrow, with some punctures and two prominent pits placed in a transverse line; clypeus triangular, somewhat raised, with a sharp median line. Antennæ extending to a certain distance beyond the base of the pronotum; first segment long and club-shaped, about equal in length to the following three together, second thicker but hardly longer than third, fourth about equal to third; from the fifth the segments are somewhat thickened. *Prothorax* broader than long, sides straight but oblique, anterior and posterior lateral angles rounded and each having a seta-bearing pore, posterior margin sinuate on each side, and with a median lobe; surface closely and finely punctate. *Scutellum* sharply triangular, impunctate. *Elytra*: the side-margin of the pronotum together with that of the elytron forms one continuous curve on each side; surface closely and finely punctate, the punctures generally confused, but showing a certain tendency to form longitudinal rows. *Underside* covered with fine brownish hairs, more particularly on the legs; posterior femora enormously thickened; apical spines of posterior tibiæ sharp.

Length, 3 mm.; *breadth*, $2\frac{1}{4}$ mm.

NILGIRI HILLS (*G. F. Hampson*).

Type in the British Museum. Described from seven examples.

Genus **ARGOPISTOIDES**, *Jacoby*.

Argopistoides, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 931.

GENOTYPE, *Argopistoides septempunctata*, Jac.

Body rounded, convex. Antennæ short, widely separated, third segment the longest and more slender, the terminal segments slightly thickened, short. *Prothorax* very strongly transverse, without any ante-basal furrow, the angles obtuse. *Scutellum* broad. *Elytra* confusedly punctate, their epipleura very broad, continued to the apex. *Underside*: prosternum narrowly elongate; mesosternum subquadrate, broader than long; anterior coxal cavities open behind; posterior femora strongly incrassate, the corresponding tibiæ deeply sulcate in their apical portion and armed with a robust double-pointed spur; first segment of posterior tarsi as long as the following three segments together; claws appendiculate.

Range. Burma.

218. Argopistoides septempunctata, *Jacoby.*

Argopistoides septempunctata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 932.

Body ovately rounded, convex. Colour testaceous; head fulvous; the four basal segments of the antennæ light brown, the intermediate segments black, and the terminal segments obscure fulvous; sides of the breast and the extreme apex of the posterior femora black; each elytron with seven small black spots, disposed as follows: two placed in a transverse line at the base, three similarly placed across the middle, and two placed obliquely at the apex; the punctures also are piceous.

Head rather flat; vertex impunctate, frontal tubercles scarcely raised; clypeus broad, impunctate. Antennæ extending a little beyond the base of the elytra. *Prothorax* three times as broad as long, sides nearly straight, anterior angles obliquely thickened, posterior margin rounded at the middle; surface impunctate, with a longitudinal depression at each side. *Elytra* minutely punctate.

Length, $4\frac{2}{3}$ mm.

BURMA: Karen Cheba (*Fea*).

Type in the Genoa Museum.

I have not seen this species. The above is adapted from the original description.

Genus **JACOBYANA**, gen. nov.

GENOTYPE, *Sphærophysa piceicollis,* Jac.

Body rounded, strongly convex. *Head* rugose; antennæ short, not extending beyond the base of the pronotum, the third segment being the longest and the terminal ones broadened. *Prothorax* much wider than long, strongly narrowed in front, anterior angles thickened nearly as far as the middle, posterior margin sinuate on either side, its median lobe produced; no antebasal furrow. *Elytra* very regularly punctate-striate, and somewhat pointed behind; interstices quite flat. *Underside*: anterior coxal cavities open behind; posterior femora strongly thickened; posterior tibiæ deeply channelled and armed with a distinct spur at the apex; mesosternum as long as the metasternum; elytral epipleura broad and slightly concave. The structure of the posterior tarsi and claws is as stated in the description of the following species, which is the genotype.

Jacoby doubtfully placed this species in the genus *Sphærophysa,* Baly; this latter was erected for a species from Madagascar, *S. clavicornis,* Baly, the type of which is in the British Museum and has been carefully examined. The Madagascar beetle is ovate in form and has the anterior coxal cavities closed behind, whereas the present Burmese insect is rounded and, according to Jacoby, has the anterior coxal cavities open behind. It has a

certain resemblance with the *Sphærophysa*, but differs from it in that the apical segments of the antennæ are incrassate and the elytra punctate-striate.

Range. Burma.

219. **Jacobyana piceicollis**, *Jacoby.*

Sphærophysa piceicollis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 195.

Body strongly convex, somewhat narrowed behind. Colour black; elytra deep chocolate-brown; antennæ yellow-brown.

Head: seen from above, the vertex is hardly visible; vertex, interocular spaces, interantennal spaces and clypeus rough, very coarsely covered with pits, which are sometimes large and shallow and confluent with each other; no distinct frontal tubercles.

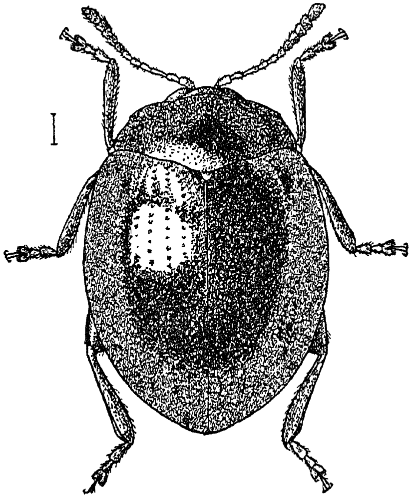

Fig. 112.—*Jacobyana piccicollis,* Jac.

Antennæ short, hardly extending beyond the base of the prothorax, the three basal segments lying in a very deep channel between the posterior margin of the eye and the outer margin of the clypeus, the six apical segments thickened; first segment long and club-shaped, second somewhat shorter but thicker than the third, which is slender, fourth shorter than third, fifth and sixth more or less nearly equal. *Prothorax* much broader than long, sides obliquely and gently curved, posterior margin sinuate, with a median lobe; surface convex, finely and moderately closely punctate. *Scutellum* small, triangular. *Elytra* strongly convex, at the base very slightly broader than the prothorax, sides rounded,

narrowed in front, more so behind; regularly punctate-striate, each elytron having eleven longitudinal rows, including a short scutellar and an extreme marginal row; interstices flat. *Underside*: the whole surface, but not the legs, covered with shallow pits; anterior coxal cavities open behind; femora deeply channelled for the reception of the tibiæ when the insect is in repose; the tibiæ are not rounded but have flat or slightly depressed surfaces with sharp edges; the posterior pair have a sharp spine at the apex; first segment of posterior tarsi long; claws appendiculate.

Length, 4¼ mm.

BURMA: Bhamo, vii. 1886 (*L. Fea*).

Type in the Genoa Museum. The above description is taken from an example kindly communicated to me by Dr. Gestro.

Genus **LANKA** *, gen. nov.

GENOTYPE, *Lanka brunnea*, sp. nov.

Body oblong-ovate, small. *Head* as broad as prothorax; eyes moderately convex; vertex convex and continuing as a fine ridge between the bases of the antennæ. Antennæ only about a millimetre shorter than the body, with apical segments slightly thickened. *Prothorax* quadrate, convex, and sloping down steeply on each side in front, base widely rounded, sides margined, anterior and posterior angles rounded; no ante-basal furrow. *Scutellum* small, triangular, with apex rounded. *Elytra* only slightly broader at base than prothorax, regularly punctate-striate, the punctures being extremely fine and placed rather far apart from each other in each row. The whole of the upper surface is otherwise perfectly smooth. *Underside*: anterior coxal cavities open behind; prosternum moderately broad and rounded at apex; metasternum prominently elevated, each side being formed into a lobe with a rounded extremity; epipleura of elytra continuing almost up to the apex; posterior femora strongly incrassate; tibiæ subcylindrical, not channelled; the posterior pair have the upper side more or less flattened and a sharp, small, apical spine; first segment of anterior and middle tarsi somewhat broadened (this may be a secondary sexual character), that of the posterior tarsi not broadened, but almost equal in length to the two following segments; claws appendiculate.

Range. Ceylon.

220. **Lanka brunnea**, sp. nov.

Body small, oblong-ovate. Colour red-brown; head, prothorax, scutellum and legs, black.

Head with vertex elevated, impunctate. Antennæ with first segment elongate, second smaller, third slightly longer than

* A Sanskrit name of Ceylon.

second, fourth and fifth almost equal in length, sixth slightly shorter but somewhat thickened, seventh to eleventh much thicker and more hairy, last segment pointed. *Prothorax* with the upper surface convex, sloping at the sides, smooth, shining, and under a high power very finely and sparsely punctate. *Scutellum* small and impunctate. *Elytra* broader at base than prothorax; each elytron has eleven longitudinal rows of very fine punctures, including a long, somewhat irregular, scutellar and an extreme

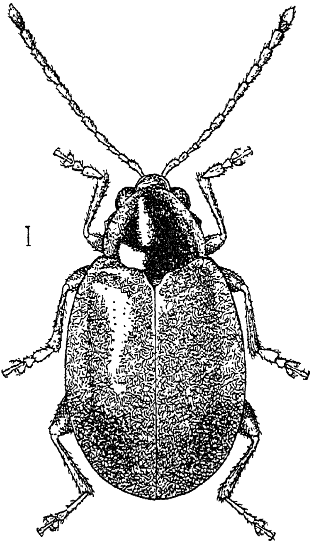

Fig. 113.—*Lanka brunnea*, Maulik.

marginal row; the interspace between the tenth and the extreme marginal rows is wider than the other intervals; the punctures tend to become obliterated towards the apex. *Underside* smooth, shining, impunctate, sparsely covered with fine hairs, more particularly on the abdominal sternites.

Length, $2\frac{3}{4}$ mm.

CEYLON (*G. Lewis*).

Type in the British Museum. Described from one example.

Genus EUCYCLA, *Baly*.

Eucycla, Baly, Trans. Ent. Soc. Lond. 1876, p. 439.

GENOTYPE: in erecting the genus Baly described two species, the first of which, *Eucycla quadripustulata*, from Borneo, is here designated as the genotype.

Body rounded, strongly convex. *Head* triangular in shape.

front vertical, elevated between the antennæ, clypeus cuneiform, raised behind, frontal tubercles transverse and contiguous. Eyes large, oblong. Antennæ with their bases very close together; in the males of some species they are somewhat longer than the body, but shorter in the female; first segment very long, club-shaped; the distal segments are progressively thickened towards the apex, and the last segment is compressed and elongate-ovate. *Prothorax* much broader than long, longest along the longitudinal middle line, basal margin bisinuate on each side, with a rounded lobe in the middle; no ante-basal furrow. *Scutellum* triangular. *Elytra* hardly broader than prothorax at base, regularly punctate-striate; punctures deep, interstices slightly raised. *Underside*: prosternum transverse; anterior coxal cavities open behind. Legs robust; posterior femora strongly incrassate; dorsal side of tibiæ flat, concave towards the distal end; posterior tibiæ with a very minute spine at the apex; tarsi large; claws appendiculate.

Range. Sumatra, Borneo, Ceylon.

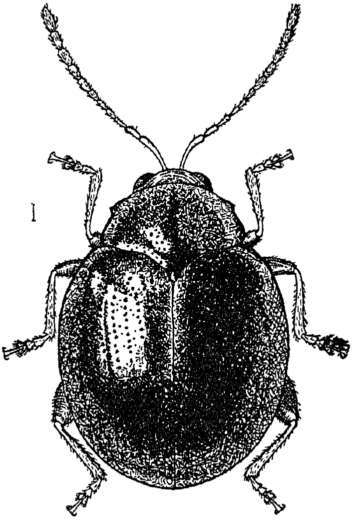

Fig. 114.—*Eucycla ceylonensis*, Jac.

221. **Eucycla ceylonensis**, *Jacoby*.

Eucycla ceylonensis, Jac., Proc. Zool. Soc. Lond. 1887, p. 87.

Body ovate, strongly convex. Head, pronotum, underside and legs, red-brown; the three basal segments of the antennæ brown with the upper side piceous, the remaining segments black; pronotum with the median basal part black, the latter colour extending

faintly and narrowly along the middle to the front end, where it spreads out transversely on each side; elytra greenish-black, the suture from about the middle to the hind end narrowly, and the extreme apices, red-brown; scutellum brown.

Head finely punctate, frontal tubercles not very strongly developed, interantennal carina present; in the interocular space there are two obliquely impressed lines meeting in the centre. Antennæ extending to a little distance beyond the base of the pronotum; first segment long, curved, slender and club-shaped, equal to the following three together, second thicker and larger than third, fourth slightly shorter than third, fourth, fifth and sixth short and of about equal length; from the seventh to the eleventh the segments are thicker, more bristly and larger. *Prothorax* much broader than long, slightly narrowed in front, front margin straight, hind margin sinuate at each side with a rounded median lobe, sides straight but oblique, slightly margined, anterior lateral angles oblique and thickened, at each of the four lateral angles is a strongly developed base for a fine seta; surface uniformly convex, more or less closely punctate. *Scutellum* triangular, with sides and apex rounded, and surface smooth and impunctate. *Elytra*: each elytron has eleven longitudinal rows of punctures, including a short scutellar and an extreme marginal row; the intervals do not appear to be quite flat, they are very minutely punctate, and that between the last row and the last but one is broader than the others; all the rows converge in pairs towards the apex; the lateral edges are slightly margined. *Underside* covered with fine hairs.

Length, $2\frac{1}{2}$ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum. The above description is drawn up from the example marked "type."

Genus **THRYLÆA**, *Jacoby*.

Thrylæa, Jac., Proc. Zool. Soc. Lond. 1887, p. 98.

GENOTYPE, *Thrylæa variabilis*, Jac.

Body subovate, rounded. *Head*: eyes rather large; frontal tubercles in the shape of oblique narrow ridges. *Prothorax* broader than long, anterior angles obliquely truncate, surface without any transverse ante-basal furrow. *Elytra* punctate-striate, their epipleura broad and continued to the apex. *Underside*: tibiæ not channelled dorsally; first segment of posterior tarsi as long as the two following segments together; prosternum broad, one-half longer than broad; mesosternum transverse, subquadrate; anterior coxal cavities open.

Range. Ceylon.

222. **Thrylæa variabilis**, *Jacoby*.

Thrylæa variabilis, Jac., Proc. Zool. Soc. Lond. 1887, p. 99.

Body subovate, rounded. Colour red-brown; head, the five apical segments of the antennæ, prothorax and legs, black; the tibiæ and tarsi may be more brownish than black; the six basal segments of the antennæ are yellow-brown.

Head: vertex convex, impunctate; eyes large. Antennæ just one millimetre shorter than the length of the body; first segment elongate, club-shaped, second almost as long as, and thicker than, the third, which is slender, fourth and fifth, which are equal to each other, each slightly shorter than third, sixth slightly thicker

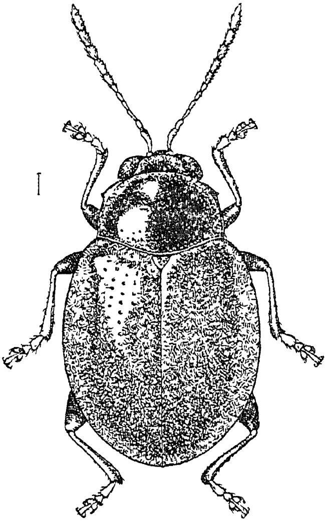

Fig. 115.—*Thrylæa variabilis*, Jac.

than the preceding segments; from the seventh the segments become much larger, thicker, and opaque. *Prothorax* broader than long, front margin straight, sides straight, anterior and posterior angles thickened, the former more so, and possessing seta-bearing pores, basal margin gently rounded; surface convex from side to side, finely and not very closely punctate, the punctures showing a tendency to arrangement in transverse rows towards the base. *Scutellum* triangular, smooth, impunctate. *Elytra* hardly broader at base than prothorax, but broadened immediately behind, humerus raised, convex; each elytron has the following well-arranged rows of deep punctures: a short scutellar row, terminating just before the middle of the elytron, and ten other rows at almost regular intervals; the rows converge towards the apex; counting from

the suture the sixth, seventh and eighth arise behind the humeral prominence, the tenth lies along the extreme margin; the interstices appear very slightly raised when seen at certain angles, and that between the ninth and tenth is broadest. *Underside* smooth and impunctate.

Length, 3 mm.; *breadth*, 2 mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **AMPHIMELOIDES**, *Jacoby*.

Amphimeloides, Jac., Proc. Zool. Soc. Lond. 1887, p. 96.

GENOTYPE: *Amphimeloides dorsalis*, Jac.

Body ovate, convex. *Head*: maxillary palpi long, with apical segment small, conical, pointed; the antennæ are not close together, but inserted close to the eyes, and are thickened towards the apex. *Prothorax* broader than long, convex, sides angulate in front of the middle; no transverse ante-basal furrow. *Elytra* irregularly punctate. *Underside*: prosternum very narrow, but distinct; anterior coxal cavities open; mesosternum emarginate; posterior femora strongly incrassate; posterior tibiæ dilated and slightly longitudinally sulcate near their apices, which are armed with a long pointed spine; the bilobed segment of the tarsi is not expanded, insignificant; claw-segment strong; claws appendiculate.

The considerable space between the insertion of the antennæ is an important character of this genus, which is also distinguished from *Amphimela* by the open coxal cavities.

Range. Ceylon.

223. **Amphimeloides dorsalis**, *Jacoby*.

Amphimeloides dorsalis, Jac., Proc. Zool. Soc. Lond. 1887, p. 96.

Colour brown; the six apical segments of the antennæ black; the metasternum and the sides of the lower surface of the thorax, the first abdominal sternite partly, and the dorsal side of the femora, piceous; scutellum and a broad longitudinal, but abbreviated, median band on each elytron, black.

Head: vertex smooth and impunctate, frontal elevations or interantennal carina absent; clypeus not separated from the face, which forms a flat surface; when the head is viewed from the front a short depression is visible along the inner side of the eyes, the antennæ being inserted in these depressed areas. Antennæ nearly half the length of the body; first segment elongate, club-shaped, second slightly shorter and thicker than the third, which is slender, fourth and fifth equal in length; from the sixth to the last the segments gradually thicken and together form an elongate club. *Prothorax* much broader than long, front margin emarginate, basal margin widely rounded, sides rounded; surface

convex, smooth and impunctate, without any depressions. *Scutellum* broadly ovate, smooth and impunctate. *Elytra* broader than prothorax, confusedly and strongly punctate. *Underside* shining, impunctate, and glabrous.

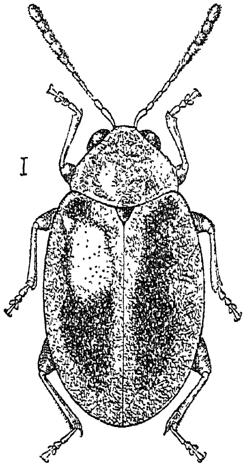

Fig. 116.—*Amphimeloides dorsalis*, Jac.

Length, 2 mm.; *breadth*, 1½ mm.; *length of antenna*, about 1 mm.

CEYLON: Dikoya, 3800–4200 ft., 25–27. ii. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **PARATHRYLEA**, *Duvivier*.

Parathrylea, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 420.

GENOTYPE, *Parathrylea apicipennis*, Duviv.

Body oblong-ovate, convex, smooth. *Head* with vertex broad and somewhat convex, frontal tubercles not very well developed, separated from the vertex by a V-shaped impression, interantennal space rather broad, the carina absent. Antennæ short, extending a little beyond the base of the pronotum, thickened towards the apex. *Prothorax* much broader than long, somewhat narrowed in front, front margin more or less nearly straight, hind margin with a median lobe, which is rounded, the margin on each side being oblique; surface somewhat convex; no ante-basal transverse furrow. *Scutellum* triangular, with apex broadly rounded. *Elytra* hardly broader at base than prothorax, ovate, narrowed towards the apex, surface generally punctate. *Underside*: prosternal process narrowed in front and triangularly broadened behind; anterior coxal cavities open behind. Legs long, more or less

slender; posterior femora strongly incrassate, channelled on the underside; tibiæ subcylindrical, hardly thickened towards the apex, the posterior pair with a long spine at the apex; in the male the first segment of the front and middle tarsi is broad, about as long as the following two together; first segment of posterior tarsi longer than the following two together, second segment in all the tarsi small, third bilobed but small, claw-segment long, projecting much beyond the bilobed segment; claws appendiculate.

Range. India.

224. Parathrylea apicipennis, *Duvivier*.

Parathrylea apicipennis, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 421.

Body oblong-ovate, narrowed behind. Colour shining black; the four basal segments of the antennæ, the prothorax, the apical part of the elytra and the three apical ventral segments of the abdomen, yellow; the front margin of the prothorax is narrowly

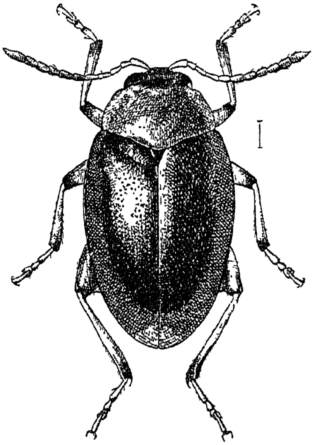

Fig. 117.– *Parathrylea apicipennis*, Duviv.

edged with black, and the apical yellow patches of the elytra contain many black spots, irregularly placed; the elytra have a greenish tinge; the colour of the femora and tarsi and part of the mandibles varies from yellow to brown or pitch-black.

Head convex at the vertex, impunctate or bearing a few fine punctures, frontal elevations not very prominent, interantennal space rather broad and with a few punctures. Antennæ short, extending a little distance beyond the base of the pronotum, from the fifth segment onwards thickened and more hairy; first segment

elongate and club-shaped, second and third almost equal to each other in length, fourth slightly longer. *Prothorax* broader than long, narrowed in front, front margin almost straight, sides almost straight or slightly rounded, anterior and posterior angles rounded, basal margin gently sinuate on either side; surface gently convex, smooth, and closely punctate. *Scutellum* broad, triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax; humerus convex and rounded; surface closely punctate, or impunctate, or bearing a puncture here and there. *Underside*: abdominal segments with shallow, small and round impressions or punctures, particularly at the sides.

Length, 3½ mm.; *breadth*, 2 mm.

Darjeeling District: Kurseong (*P. Braet*); Darjeeling, 7000 ft., 10. viii. 1909 (*C. Paiva*, Indian Museum). United Provinces: Haldwani, Bodair, Kumaon, Sarju Valley, 5000 ft.; about 46 specimens (*H. G. Champion*).

Location of *type* unknown to me; Mons. Severin informs me that there are no examples of this species in the Brussels Museum.

Duvivier in his original description states that the pronotum and the elytra are closely punctate; but in the specimen before me in the British Museum, which was obtained from Duvivier's collection through Jacoby, I am unable to find this dense punctuation. This specimen has only "Bengal" on the locality-label. At the end of his description Duvivier records "Kurseong (*P. Braet*)," which should be taken as the type-locality. I have before me another example from Darjeeling in which the punctures are very fine, but not obsolete to such an extent as in Duvivier's example. It may be noted that these two examples have the legs black. In other specimens the colour of the legs is brown, with the apices of their several parts generally tinged with pitch-black, and in some cases the tarsi are quite pitch-black. Since there is a gradation in the density of punctuation of the pronotum and elytra and in the coloration of the legs, it is not possible to say with certainty that the two examples mentioned above belong to a distinct species; more material is necessary to establish the fact, and therefore they are retained, for the time at any rate, in *P. apicipennis*.

Genus **CHABRIA**, *Jacoby*.

Chabria, Jac., Proc. Zool. Soc. Lond. 1887, p. 92.

Genotype, *Chabria nigroplagiata*, Jac.

Body ovate, rounded, somewhat narrowed behind, very convex. *Head* broad; antennæ not contiguous, relatively widely separated, but with their bases well away from the eye-margins, filiform, slightly thickened towards the apex. *Prothorax* much broader than long (but not four times as broad as long, as Jacoby states), with no ante-basal transverse furrow. *Scutellum* triangular. *Elytra* broader than prothorax, convex; surface smooth, seen

under a high power to be very finely and minutely punctate. *Underside*: prosternum narrow but distinct, longer than broad, its base slightly widened and rounded; anterior coxal cavities open behind; posterior femora strongly incrassate; tibiæ not channelled on the dorsal side, the posterior pair broadened at the apex, where the dorsal side is flattened a little, and furnished beneath with a sharp spine; first segment of posterior tarsi as long as the two following together; claws appendiculate.

Range. India, Ceylon, Burma.

Key to the Species.

1. Insect unicolorous	*Ch. apicicornis*, Jac., p. 313.
Insect not unicolorous	2.
2. Pronotum not entirely black; each elytron with two transverse black bands (of which the first may be brown) and an apical black patch.	*Ch. nigroplagiata*, Jac., p. 314.
Pronotum entirely black; five black patches on each elytron	*Ch. decemplagiata*, sp. n., p. 315.

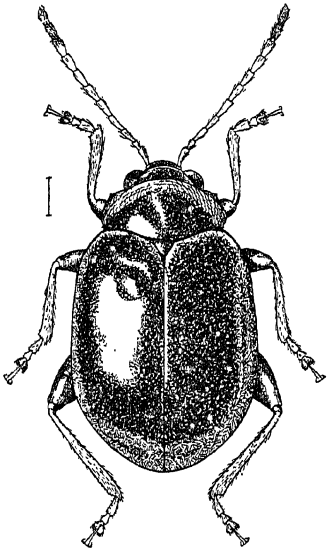

Fig. 118.—*Chabria apicicornis*, Jac.

225. Chabria apicicornis, *Jacoby*.

Chabria apicicornis, Jac., Proc. Zool. Soc. Lond. 1887, p. 93.

Body ovate. Colour varying from brown to piceous; some specimens have the pronotum piceous and the rest of the body brown; in some examples the underside is piceous, while the

upper side is brown, or the insect may be entirely brown. The two or three apical segments of the antennæ are usually black.

Head broad, vertex convex, impunctate, frontal tubercles almost entirely absent; eyes strongly convex; interantennal space broad, bounded behind by a transverse, deeply-impressed, line; clypeus broad, hardly narrowed behind, and with a few punctures on its surface. Antennæ about two millimetres shorter than the length of the body; the first segment the longest, club-shaped, second much shorter but thicker than the third, which is slender, third, fourth, and fifth almost equal to each other; from the sixth onwards the segments become very slightly thicker, more hairy and almost equal to each other in length, the last being obliquely pointed. *Prothorax* broader than long, anterior and posterior margins almost straight (the latter may be very widely arched), sides strongly rounded and narrowly margined, at the anterior angles the margins are thickened and truncate, and on the thickened corner there is a pore containing a seta, each of the posterior angles also possesses a similar setigerous pore; surface smooth, convex and, seen under a high power, minutely and sparsely punctate. *Scutellum* broad, triangular, smooth and impunctate. *Elytra* broader than prothorax, strongly convex, narrowed towards the apex, seen under a high power to be very minutely, irregularly and sparsely punctate. *Underside*: abdominal sternites, more especially at the sides, and part of the rest of the surface sparsely covered with fine hairs; appendices of the claws large and prominent.

Length, 6–7 mm.; *breadth*, 4–5 mm.

CEYLON: Dikoya, 3800–4200 ft.; Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*); Halupahani, Haldummulla (many specimens in the Andrewes Collection).

Type in the British Museum.

This is a variable species. There are four specimens in the British Museum which have the body slightly shorter and which differ from the type in one or two minor points, but I do not propose to give them a new name.

226. Chabria nigroplagiata, *Jacoby*.

Chabria nigroplagiata, Jac., Proc. Zool. Soc. Lond. 1887, p. 93.

Body ovate, strongly convex, narrowed behind. Underside black; tibiæ brown; tarsi piceous; upper surface yellow-brown to dark brown, with the following black markings: on the pronotum, at the base and nearer the sides than the middle line, there are two ill-defined patches, which may be entirely absent; the edges of the elytra and of the pronotum are sometimes stained black, and on each elytron there are three patches: first, a post-basal transverse band, which in some cases is divided into two in the middle, the inner part more or less rounded and the outer part extending in a triangular form towards the base; secondly, there

is a post-median transverse band, which always extends in a triangular form along the suture towards the apex; and, finally, on the apical part, there is a large patch, more or less rounded or pear-shaped; the post-basal band, when not divided in the middle, is curved, and the post-median band may be more or less sinuate or straight. The scutellum is black or piceous, and the head may or may not have a black patch.

Head: vertex convex, impunctate and separated by a transverse suture from the rest of the face; frontal tubercles absent. Antennæ nearly half the length of the body; first segment long and club-shaped, second thicker but shorter than third, which is slender and equal to, or very slightly shorter than, either the fourth or the fifth; from the sixth onwards the segments are thicker. *Prothorax* much broader than long, convex, sides rounded, front margin widely emarginate, basal margin widely arched, anterior angles thickened, and each of the anterior and posterior angles bearing a seta. *Scutellum* broad, triangular, smooth, impunctate. *Elytra* broader than prothorax, strongly convex, with the surface very minutely and irregularly punctate. *Underside* smooth, shining; abdominal sternites and some portions of the other parts very sparsely covered with fine hairs. The appendix situated on the under side of each claw is large, square and very prominent.

Length, 5½ to 6½ mm.; *breadth*, 4–5 mm.

CEYLON: Bogawantalawa, 4500–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*); Nuwara Eliya, 24. iv. 1914.

Type in the British Museum.

227. **Chabria decemplagiata**, sp. nov.

Body oblong-ovate. Colour shining black; elytra yellow-brown, with five black patches on each, disposed as follows: two post-basal, lying in a transverse line, two post-median, similarly situated, and one apical.

Head smooth and impunctate, interantennal space broad and not depressed, vertex not separated by any deeply impressed line; maxillary palpi large, penultimate segment thickened, apical segment small, conical. Antennæ about two and a half millimetres shorter than the length of the body; first segment the longest, club-shaped, second shorter but slightly thicker than third, the latter slightly longer than the fourth, which is equal to the fifth; from the sixth onwards the segments are almost equal and more hairy, the last being small. *Prothorax* broader than long, convex, sides strongly rounded, narrowly margined, at the anterior angles the margin is thickened, each of the anterior and posterior angles bearing a seta, front and hind margins more or less nearly straight; surface impunctate. *Scutellum* broad, triangular and impunctate. *Elytra* broader than prothorax; surface impunctate: in the yellow-brown portions, through the transparency of the chitinous layer, small round spots with dark centres are visible.

Underside smooth, impunctate; abdominal sternites and parts of the other regions sparsely hairy.

Length, 6½ mm.; *breadth*, 4½ mm.

South India; Madura, Shembaganur (*S. Maulik*); Kodaikanal (*T. V. Campbell*, Champion Coll.). The type-specimen bears on the label no more information than "India, ex Clavareau" (Jacoby Coll.).

Type in the British Museum. Described from two examples.

Genus **SPHÆRODERMA**, *Stephens*.

Sphæroderma, Stephens, Ill. Brit. Ent. iv, 1834, p. 328; Chapuis, Gen. Col. xi, 1875, p. 135; Fowler, Col. Brit. Islands, iv, 1890, p. 372.

Genotype: when proposing this genus, Stephens enumerated several species, of which the first was *Altica testacea*, Fabr. (Syst. Ent. 1775, p. 114). This European form is here designated as the genotype.

Body hemispherical, ovate, sometimes narrowed behind. *Head* subtriangular, vertex somewhat convex; eyes generally very large; in the interocular space there is either a straight impressed line or two oblique lines meeting in the centre, each of these lines often extends behind the eye, and they always form the posterior boundary of the frontal tubercles, which are not always very strongly produced; interantennal space developed into a sharp ridge or rounded elevation; the labrum is large and may be either transverse or longer than broad; the clypeus and labrum have generally a few erect, long, and thin hairs; mouth-parts generally somewhat exserted. Antennæ never very long, but reaching lengths between the base and three-quarters the length of the elytra; first segment always long and club-shaped, second about half the length of the first and thick, sometimes thicker than the third; in length the second and third are either equal or subequal; each of the following segments is somewhat longer, the fourth and fifth are sometimes equal; after the fifth, as a rule, the segments are gradually thickened and in length about equal; the last is longer and pointed. *Prothorax* always much broader than long, somewhat narrowed in front, longest along the middle line and gradually shortened towards each side; the sides may be oblique but straight, or rounded, the anterior lateral angles sometimes produced and expanded, the posterior angles rounded, each of the four angles often bearing a fine seta; the front margin is often one wide curve but sometimes it is sinuate, the posterior margin is always sinuate on each side, with the middle portion produced into a lobe; no ante-basal transverse furrow; surface convex and generally punctate. *Scutellum* small, triangular, its surface always smooth and impunctate. *Elytra* hardly broader at base than prothorax; prothorax and elytra form the hemispherical contour of the back as one continuous curve; surface always

punctate, the punctures sometimes stronger than those of the pronotum, irregular, or with a tendency to form longitudinal rows; in some cases the rows are paired, but very often there are only four pairs, the intervals being full of confused punctures; besides the larger punctures there are often very minute punctures, and along the lateral margin there is a broad space, somewhat narrowing towards the apex, and generally covered with minute punctures (though it has sometimes been referred to as an impunctate space); along the extreme margin there is always a row of strongly impressed punctures. *Underside*: prosternal process somewhat broad aud elevated between the coxæ, narrowed in the middle, somewhat dilated and truncate behind; anterior coxal cavities open behind; mesosternum reduced to a fine transverse arched carina. Legs short and robust; posterior femora much thickened, thicker than the others, and channelled underneath for the reception of the tibiæ; tibiæ somewhat dilated at the extremity, which is furnished with a small spine, while their outer surface is narrowly channelled to a short distance; first segment of the tarsi about as long as the following two together, third broad and bilobed and not split longitudinally along the middle, fourth terminated by two appendiculate claws.

The males are distinguished by the broader anterior tibiæ and by the dilated first segment of all the tarsi.

Range. The largest number of species occurs in Asia, but some have have also been found in Europe, Africa, and America.

Key to the Species.

1.	Elytra dark violaceous-blue	2.
	Elytra not so coloured	3.
2.	Larger insects (4 mm. long), more oblong; colour purer and deeper violaceous-blue; punctuation on elytra irregularly arranged in closely placed, paired rows	*S. geminata*, Jac., p. 319.
	Smaller insects (3 mm. long), more rounded; colour not pure violaceous-blue; elytral punctures confused ..	*S. discicollis*, Jac., p. 319.
3.	Elytra piceous; on each elytron a large yellow-brown patch..............	*S. ornatipennis*, Jac., p. 320.
	Elytra not so coloured	4.
4.	Elytra pale yellow-brown; the sutural and extreme lateral margins and a large spot at the middle of each elytron piceous	*S. biplagiata*, Jac., p. 321.
	Elytra not so coloured..............	5.
5.	Large insects ($5\frac{1}{2}$ mm. long); colour above shining black; anterior lateral angles of the pronotum strongly produced and expanded..............	*S. acutangula*, Jac., p. 321.
	Insects always less than $5\frac{1}{2}$ mm. long; anterior lateral angles of the pronotum not strongly produced and expanded	6.

6. Antennæ short, only reaching the base of the elytra	7.
Antennæ extending beyond the base of the elytra	9.
7. Antennæ entirely yellow-brown	*S. pallidicornis*, Jac., p. 322.
Antennæ not entirely unicolorous	8.
8. Colour shining black; pronotum evenly punctate	*S. nigrita*, Jac., p. 323.
Colour dark brown or pitchy-brown; pronotum more punctate towards the base than towards the front and sides	*S. brevicornis*, Jac., p. 323.
9. Small insects ($2\frac{1}{2}$ mm. long); colour brown with an ill-defined blackish patch of varying extent on the apical part of the elytra	*S. terminata*, Jac., p. 324.
No such combination of characters ..	10.
10. Antennæ extending beyond half the length of the body, intermediate segments robust, slightly widened, the others more elongate, all pubescent.	*S. antennata*, Jac., p. 324.
Antennæ not so constructed	11.
11. Large insects (5 mm. long); head and pronotum deep red-brown, elytra black with the suture and lateral edges very narrowly deep brown ..	*S. varipennis*, Jac., p. 325.
No such combination of characters ..	12.
12. Small insects ($2\frac{1}{2}$ mm. long); colour rich brown, underside somewhat darker; the three basal segments of the antennæ paler brown, the rest black	*S. birmanica*, Jac., p. 326.
No such combination of characters ..	13.
13. Insects $3\frac{3}{4}$–$4\frac{3}{4}$ mm. long, generally piceous, elytra reddish-brown, elytral punctures surrounded by piceous rings	*S. piceicollis*, Jac., p. 326.
No such combination of characters ..	14.
14. Small insects ($2\frac{1}{2}$ mm. long); colour shining reddish-brown; pronotum with three ill-defined patches which, if sometimes obsolescent, are still recognizable	*S. orientalis*, Jac., p. 327.
No such combination of characters ..	15.
15. Lower portion of face strongly produced; body broadest at the base of the elytra, narrowing towards the apex; colour shining dark reddish-brown..........................	*S. mandarensis*, Jac., p. 327.
Lower portion of face not strongly produced; body ovate, strongly convex; colour shining dark brown....	*S. varipes*, Jac., p. 328.

A translation of the description in German of *Haltica fulvipennis*, Illiger, which is placed in this genus, is given on p. 329, but the species has not been included in the key. Likewise Motschulsky's species are also recorded on p. 329, but not included in the key.

228. Sphæroderma geminata, *Jacoby*.

Sphæroderma geminata, Jac., Notes Leyd. Mus. vi, 1884, p. 36.
Sphæroderma geminata, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 192.

Subquadrate, strongly convex. Head, prothorax, scutellum, and underside shining red-brown; antennæ brown; elytra shining, pure, deep violaceous-blue.

Head with vertex impunctate, but with a few minute punctures on the interocular area, the latter with a depression and a faint, transversely impressed, line, frontal tubercles and interocular carina not developed; eyes small, not as large as is usual in *Sphæroderma*, the inner margin of each eye with a deeply impressed channel. Antennæ extending to a certain distance beyond the base of the pronotum; first segment long and club-shaped, second thicker but somewhat shorter than third, fourth about equal to third; from the fifth the segments are thickened and slightly darker. *Prothorax* much broader than long, sides rounded, anterior lateral angles slightly but acutely produced, posterior margin sinuate on either side, with a median lobe; surface strongly and more or less closely punctate, the punctures towards the base somewhat finer. *Scutellum* small, triangular, impunctate. *Elytra* hardly broader at base than prothorax, punctate-striate, the longitudinal rows arranged in pairs, but the punctures in each row not regularly arranged; on each elytron there are about ten pairs, while along the lateral margin is a broad, so-called impunctate, space, bounded on the extreme margin by a row of strongly impressed punctures; interstices extremely minutely punctate.

Length, 4 mm.

SUMATRA: Benculen (type-locality), iv. 1891 (*E. Modigliani*).

Type probably in the Leyden Museum.

The above description is drawn up from one example in the British Museum which bears Modigliani's locality-label and the label of identification in Jacoby's handwriting. In 1889, while working out Fea's collection, Jacoby found a specimen from Bhamo, Burma, which, in his opinion, agreed with the Sumatran insect; but I have not seen this specimen from Bhamo. It is, however, at least certain that the paired arrangement of the elytral punctures occurs in species from the region under review; (whether this character should be made the basis of a new genus, it is not possible to say in the light of the material at present available). This species is, therefore, here placed in *Sphæroderma* and also included in the key.

229. Sphæroderma discicollis, *Jacoby*.

Sphæroderma discicollis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 929.

Form less oblong, more rounded. Head, antennæ, underside and legs brown; pronotum red-brown, with a large ill-defined

mark, occupying its basal and central parts, piceous, the latter colour blending intimately with the red-brown; elytra dark violaceous-blue (but less pure than in the preceding species); scutellum piceous.

Head with vertex impunctate, frontal tubercles distinct, interantennal carina developed; eyes large. Antennæ not extending to half the length of the elytra; first segment long and club-shaped, second somewhat larger than third, the latter about equal to the fourth; from the fifth the segments become progressively thicker. *Prothorax* much broader than long, sides gently rounded, narrowly margined; surface finely and sparsely punctate, the punctures being more evident on the basal part, while the front and lateral portions are almost impunctate. *Scutellum* triangular, smooth, impunctate. *Elytra* confusedly, closely and strongly punctate; along the margin is the broad, so-called impunctate strip, which is bounded on either side by a row of punctures. *Underside* thinly covered with fine hairs.

Length, 3 mm.

BURMA: Karen Hills, v–xii. 1888 (*Fea*).

There is one example in the British Museum with Fea's label of locality and Jacoby's label of identification, and which is marked "type," but the Genoa Museum may also claim to possess the type.

230. Sphæroderma ornatipennis, *Jacoby*.

Sphæroderma ornatipennis, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 124.
Sphæroderma flavoplagiata, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 265.

Head, prothorax, underside and legs red-brown; the three basal segments of the antennæ brown, the rest black; scutellum red-brown, mixed with piceous; elytra piceous, on each elytron is a large yellow patch, generally subtriangular in shape, extending from the base to beyond the middle and much narrowing towards the side; this patch varies in extent, but in no case reaches either the sutural or the lateral margin; the line of contact between the sutural piceous area and the yellow patch may be straight or, in some cases, somewhat sinuate; wherever the yellow patch meets the piceous ground-colour of the elytron, its edge is more red-brown than piceous.

Head with vertex impunctate; eyes large; frontal tubercles rather small, the transverse line of demarcation separating them from the vertex not deeply impressed, interantennal carina sharp, clypeus deflexed, its anterior edge straight. Antennæ extending to a little distance beyond the base of the pronotum; first segment long and club-shaped, second somewhat larger than third, the following segments more or less nearly equal to each other and gradually somewhat thickened. *Prothorax* much broader than long, sides very gently rounded with margins narrowly reflexed,

anterior lateral angles obliquely rounded, basal margin sinuate at each side as usual, its median lobe broadly rounded and produced; surface very minutely punctate, the punctures not very close together, sparser in front. *Scutellum* triangular, smooth, impunctate. *Elytra* hardly broader at base than prothorax, punctate-striate, each elytron having about eleven rows which are arranged in pairs; a broad, so-called impunctate, space extends along the lateral margin, and a row of deep punctures along the extreme margin; besides bearing the rows of punctures the whole surface is completely and confusedly covered with very fine punctures. *Underside* thinly covered with fine hairs.

Length, 4 mm.

BURMA: Toungoo (type-locality); Karen Mts. (*Doherty*).

Type in the British Museum.

Jacoby first described this species in 1896, calling it *flavoplagiata*, but, finding that he had already used the same name for a species of this genus from Sumatra, he changed it to *ornatipennis*.

231. Sphæroderma biplagiata, *Jacoby*.

Sphæroderma biplagiata, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 192.

Brown; the seven apical segments of the antennæ black; elytra pale yellow-brown, the sutural and extreme lateral margins and a large spot at the middle of each elytron, piceous; the dark sutural band is slightly widened at the middle; scutellum piceous; epipleura brown, with the inner edge piceous.

Head rather broad, impunctate; clypeus broad, its apex straight. Antennæ extending to half the length of the body, third and fourth segments more slender and equal. *Prothorax* nearly three times as broad as long, sides scarcely rounded, anterior lateral angles oblique, posterior margin slightly sinuate at each side, the median lobe moderately produced; surface extremely finely wrinkled, but this rugosity is only visible under a high power. *Elytra* scarcely visibly punctate.

Length, $3\frac{3}{4}$ mm.

TENASSERIM: Kawkareik [Kawkareet] (*Fea*); a single specimen.

Type in the Genoa Museum.

232. Sphæroderma acutangula, *Jacoby*.

Sphæroderma acutangula, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 927.

Upper side shining black; underside piceous, with the apex of the abdomen brown; legs reddish-brown; the six or seven basal segments of the antennæ brown, sometimes tinged with piceous; the head, the front edge of the margin of the pronotum, together with its produced anterior lateral angles, and the extreme apex of the elytra, brown.

Head with vertex impunctate; interocular space with two deeply impressed oblique lines meeting in the centre and delimiting the flattened frontal tubercles; interantennal carina broad, clypeus depressed, labrum longer than broad, clypeus and labrum with a few long white hairs. Antennæ extending a little distance beyond the base of the elytra; first segment long and club-shaped, second a little thicker than third, the second and the following segments are more or less nearly equal in length. *Prothorax* much longer than broad, somewhat narrowed in front, sides straight but oblique, with their margins somewhat explanate and reflexed, anterior lateral angles strongly produced and narrowly expanded, front margin sinuate and basal margin also sinuate at each side, as usual; surface finely and uniformly punctate. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* somewhat narrowed towards apex; surface closely punctate, the punctures being much stronger than those of the pronotum and generally confused, but on each elytron there are three impunctate strips, each being delimited by two series of regular punctures; while along the margin is a broad space, the surface of which is impunctate in the sense that it is not covered with the stronger punctures, but only with very fine minute punctures visible under a strong power; this space is bounded along the extreme margin by a row of strong punctures, and along its inner side by two parallel rows of strong punctures. *Underside* sparsely covered with hairs, and punctate.

Length, $5\frac{1}{4}$ mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

233. **Sphæroderma pallidicornis**, *Jacoby*.

Sphæroderma pallidicornis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 930.

Black; antennæ and lower part of face yellow-brown; legs and abdomen a deeper shade of brown.

Head impunctate, eyes very large. Antennæ extending to the base of the elytra, with the terminal segments distinctly thickened, second and following segments equal. *Prothorax* about two and a half times as broad as long, longer in the middle than at the sides, sides nearly straight, anterior lateral angles oblique, not thickened; surface very minutely punctate. *Elytra* more distinctly and very closely punctate, the punctures here and there arranged in rows.

Length, $2\frac{1}{2}$ mm.

BURMA: Karen Mts. (*Fea*); a single specimen.

Type in the Genoa Museum. I have not seen the type.

This species resembles *S. abdominalis*, Jac., and *S. apicipennis*, Baly, but differs in having the pronotum minutely punctate, the elytra very closely and rather irregularly punctate, and the legs and abdomen paler.

234. Sphæroderma nigrita, *Jacoby.*

Sphæroderma nigrita, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 926.

Body subhemispherical. Colour shining black; the six basal segments of the antennæ brown, the remaining segments fuscous; tarsi brown.

Head coarsely punctate, frontal tubercles small, clypeus rugose. Antennæ extending to the base of the pronotum, the five apical segments dilated, the third elongate and slender. *Prothorax* three times as broad as long, narrowed in front, sides rounded, anterior angles strongly thickened and rounded, posterior margin sinuate at each side; surface finely, evenly, and not closely punctate. *Elytra* with rather prominent shoulders, the apex somewhat pointed; each elytron with nine rows of regular punctures, the latter being close together, and the intervals very minutely punctate. *Underside* deeply punctate; prosternum deeply and rugosely punctate.

Length, 5 mm.

BURMA: Palon (*Fea*).

Type in the Genoa Museum. A single specimen, which I have not seen.

235. Sphæroderma brevicornis, *Jacoby.*

Sphæroderma brevicornis, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 124.

Colour lighter brown to pitch-brown; the terminal segments of the antennæ black, the three basal segments brown. In one variety the prothorax is reddish-brown and the elytra are pitch-black.

Head impunctate; eyes large; there is a curved and strongly impressed transverse line in the interocular space, frontal tubercles distinct but not much raised. Antennæ extending to the base of the elytra; second segment thicker than third, fourth about equal to third; from the fifth the segments are gradually thickened. *Prothorax* strongly transverse, sides nearly straight, obliquely narrowed in front, extremely narrowly marginate, anterior angles obliquely thickened; surface very finely punctate, the parts near the front and side margins nearly impunctate. *Elytra* more or less strongly punctate, the punctures tending to form longitudinal rows.

Length, 2½–3 mm.

BENGAL: Barway; Mandar.

Type in the British Museum.

Many small species of *Sphæroderma* are similarly coloured and as variable as this, but the present one has the antennæ shorter than any; while the prothorax, which in most other species has a distinct margin at the sides, is here almost entirely without it.

In other respects the species scarcely differs from *S. birmanica*, Jac., and several others from the Eastern parts of British India, including *S. pallidicornis*, Jac., which, however, has entirely fulvous antennæ, the anterior angles of the thorax not thickened and the elytra more irregularly punctured.

236. **Sphæroderma terminata**, *Jacoby*.

Sphæroderma terminata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 929.

Body convex, more or less rounded. Colour brown; an ill-defined blackish patch of varying extent on the apical part of the elytra; four basal segments of the antennæ brown, the rest blackish; legs piceous in some examples. In one variety the head, prothorax and legs are nearly black.

Head with vertex impunctate, frontal tubercles small, narrowly transverse, interantennal carina well-developed. Antennæ extending to a little distance beyond the middle of the elytra; first segment long and club-shaped, second very slightly larger than third, fourth about equal to third; from the fifth the segments become progressively thicker. *Prothorax* much broader than long, sides rounded with narrow and reflexed margins; surface finely and not closely punctate. *Scutellum* triangular, with apex rounded and the surface impunctate. *Elytra* not broader at base than prothorax, closely and generally confusedly punctate; the punctures are much stronger than those on the pronotum, and are a mixture of stronger and finer kinds; the stronger punctures are arranged in longitudinal series, more on the outer part of the elytron than on the inner, and each elytron has a broad marginal impunctate space.

Length, $2\frac{1}{2}$ mm.

BURMA: Karen Mts. (*Fea*).

An example marked "type" is in the British Museum, but the Genoa Museum may also claim to possess the type.

237. **Sphæroderma antennata**, *Jacoby*.

Sphæroderma antennata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 925.

Body very rounded and convex. Colour piceous; head, the basal segments of the antennæ and the anterior tibiæ, dark brown; the eight apical segments of the antennæ and the prothorax black; scutellum and elytra brown.

Head impunctate, frontal tubercles acutely raised, narrowly transverse. Antennæ extending beyond half the length of the elytra; third segment not longer than second, the intermediate segments not robust, slightly widened, the others more elongate and all pubescent. *Prothorax* short, strongly transverse, sides rounded and with narrow margins, anterior lateral angles scarcely

thickened and not produced, posterior margin, as usual, sinuate at the sides; surface closely and very finely punctate, the punctuation at the sides scarcely visible. *Elytra* not more strongly punctate than prothorax, the punctures being irregular in the middle but forming four or five distinct rows at the sides; the space just within the lateral margin is nearly impunctate.

Length, $3\frac{3}{4}$ mm.

TENASSERIM: mountains between Meekalan and Kyeat rivers, ii–iii. 1887 (*Fea*).

Type in the Genoa Museum, a single specimen.

I have not seen the type, but the robust and thickened antennæ evidently differentiate this species from all others.

238. Sphæroderma varipennis, *Jacoby*.

Sphæroderma varipennis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 928.

Underside, legs, head, pronotum and the four basal segments of the antennæ red-brown; elytra black, the suture and the lateral edges very narrowly deeper brown, this colour expanding a little towards the apex of the elytra; the seven apical segments of the antennæ black; scutellum piceous.

Head with vertex impunctate; two strongly impressed oblique lines, meeting in the centre, form the posterior boundary of the frontal tubercles, which are distinct but not strongly raised; each of these oblique impressed lines passes close behind the eye; inter-antennal carina well-developed. Antennæ extending to a little distance beyond the base of the elytra; first segment long and club-shaped, second and third about equal in length, fourth and fifth also about equal in length, but each of them slightly longer than either the second or third; from the seventh the segments are somewhat thickened. *Prothorax* much broader than long, sides well rounded, with slightly reflexed margins, anterior lateral angles not produced, not expanded, posterior margin sinuate at each side and with a median lobe; surface finely punctate, the punctures somewhat sparser in front and stronger and closer on the basal part. *Scutellum* small, triangular, impunctate. *Elytra*: each elytron with four paired longitudinal rows, the third pair from the suture being somewhat irregular: the punctures generally are sparsely distributed, those between the suture and the first pair and those between the other paired rows are not regular, while, besides these, there are other much finer punctures; along the lateral margin is a broad space which contains finer punctures only, and which is bounded on the outer margin by a row of strongly impressed punctures. *Underside* covered with fine hairs.

Length, 5 mm.

BURMA: Rangoon, 1887 (*Fea*).

Type in the Genoa Museum.

239. Sphæroderma birmanica, *Jacoby.*

Sphæroderma birmanica, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 927.

Upper side rich brown, underside somewhat darker; the three basal segments of the antennæ paler brown, the rest black.

Head with vertex impunctate, frontal tubercles distinct but not much raised, oblique, interantennal carina broad, clypeus deeply depressed, labrum transverse. Antennæ hardly extending to the middle of the elytra; first segment long and club-shaped, second larger than third, fourth about equal to third; from the fifth the segments become progressively larger and thicker. *Prothorax* broader than long, sides nearly straight, narrowly margined, basal margin sinuate at each side and lobed in the middle, as usual; surface finely punctate. *Scutellum* triangular, with surface impunctate. *Elytra* more closely punctate than the prothorax, the punctures forming longitudinal series, which, however, are too irregular to be counted; along the lateral margin is a broad space, which narrows towards the apex and is not so strongly punctate as the rest of the elytral surface, but which bears some finer and scattered punctures.

Length, $2\frac{1}{2}$ mm.

BURMA: Karen Mts., v–xii. 1888 (*Fea*).

There is one example in the British Museum with Fea's label and marked "type," but the Genoa Museum may also claim to have the type.

240. Sphæroderma piceicollis, *Jacoby.*

Sphæroderma piceicollis, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 191.

Body rounded-ovate. General colour piceous; head and the four basal segments of the antennæ brown, the rest of the antennal segments black; maxillary palpi pale brown; scutellum dark brown; elytra reddish-brown; underside dark brown, partly mixed with piceous.

Head impunctate; eyes very large and close together; frontal tubercles distinct, oblique, clypeus with a strongly raised, acute, and rather convex ridge. Antennæ less than half the length of the body; second and third segments equal, fourth very slightly longer, the terminal segments slightly thickened. *Prothorax* nearly three times as broad as long, widened in the middle, sides rounded with a narrow margin, anterior lateral angles rather obtuse and somewhat oblique, posterior margin distinctly bisinuate at each side, the median lobe broadly rounded; surface evenly, finely and closely punctate. *Scutellum* small. *Elytra* convex, rounded; surface irregularly punctate-striate, the rows being rather closely approximated and the punctures surrounded by piceous rings; a broad space along the lateral margin is nearly impunctate. *Underside* clothed with thin yellowish pubescence.

Length, $3\frac{3}{4}$–$4\frac{3}{4}$ mm.
BURMA : Bhamo, vii. 1886 (*Fea*).
Type in the Genoa Museum.

241. **Sphæroderma orientalis**, *Jacoby.*

Sphæroderma orientalis, Jac., Proc. Zool. Soc. Lond. 1887, p. 92.

Body convex, narrowed towards the apex. Colour of the three basal segments of the antennæ brown, the remaining segments black; upper surface shining reddish-brown, three ill-defined blackish patches on the pronotum completely pitch-black; in some cases these patches are obsolescent; underside and legs blackish or deeper black, the last two segments of all the tarsi sometimes brownish.

Head impunctate; frontal tubercles distinct, transverse, with a median longitudinal line between them and separated from the vertex by a strongly impressed transverse line in the interocular space; mouth-parts somewhat exserted, anterior edge of the clypeus straight. Antennæ about half the length of the body; first segment long and club-shaped, second thicker and longer than third, third and fourth about equal; from the fifth the segments are gradually thickened. *Prothorax* broader than long, its longitudinal median line longer than its sides, the latter straight but oblique, posterior margin sinuate at each side, with median lobe somewhat produced and rounded; surface finely punctate. *Scutellum* small, triangular, impunctate. *Elytra* not broader at base than prothorax; the humerus not very prominent; surface punctate, the punctures being semi-regularly arranged in longitudinal series and stronger than those on the pronotum. *Underside*: prosternal process longer than broad; elytral epipleura broad, extending nearly to the apex.

Length, $2\frac{1}{2}$ mm.
CEYLON: Dikoya (type-locality), 3800 ft.–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*); Galle (*G. Lewis*).
Type in the British Museum.

242. **Sphæroderma mandarensis**, *Jacoby.*

Sphæroderma mandarensis, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 123.

Body convex, broadest at the base of the elytra, which narrow towards the apex. Colour shining piceous or dark reddish-brown; the five or six basal segments of the antennæ and the legs brown; the four or five apical segments of the antennæ blackish; the extreme margins of the abdominal segments lighter brown.

Head with vertex impunctate, frontal elevations transverse, oblique, separated from the vertex by two deeply impressed lines, which meet in the middle; lower portion of the face strongly produced and narrow; interantennal carina well-developed. Antennæ extending to a little distance beyond the base of the elytra;

first segment elongate and club-shaped, the following two segments shorter and equal, fourth and fifth somewhat shorter still and equal, sixth to eleventh dilated and subquadrate, the last more or less elongate-ovate. *Prothorax* about two and a half times as broad as long, not much narrowed in front, sides rounded, with very narrow reflexed margins, anterior lateral angles thickened, posterior margin bisinuate; surface very closely and finely punctate, the lateral parts a little more distantly so. *Scutellum* very small, triangular, impunctate. *Elytra* strongly convex, closely punctate, with more or less distinct longitudinal series amidst confused punctures; these series occur more on the outer half of each elytron than on the inner, while along the extreme margin is a deeply impressed series, which forms the outer border of a broad impunctate lateral space; the elytral punctuation is composed of a mixture of stronger and finer punctures. *Underside* finely pubescent.

Length, 3–3½ mm.

BENGAL: Mandar.

Type in the British Museum.

243. **Sphæroderma varipes**, *Jacoby*.

Sphæroderma varipes, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 193.
Eucycla varipes, Jac., Notes Leyd. Mus. vi, 1884, p. 210.

Body ovate, strongly convex. Colour shining dark brown; the four or five apical segments of the antennæ and the breast are pitch-black. In one variety the prothorax and elytra are nearly black.

Head with vertex impunctate; eyes large; frontal tubercles distinct but not much raised, separated from the vertex by two oblique impressed lines, which meet in the middle; interantennal carina well developed. Antennæ extending to a little distance beyond the base of the pronotum; first segment long and club-shaped, second about equal in length to, but thicker than, third; from the third to the seventh the segments are comparatively thinner and about equal in length, eighth to eleventh thickened. *Prothorax* much broader than long, somewhat narrowed in front, sides very slightly rounded, with narrow margins, anterior lateral angles thickened, in some cases more produced than in others (this difference was regarded by Jacoby as a secondary sexual character), each of the four angles bearing a fine seta, posterior margin sinuate at each side, with a lobe in the middle: surface closely and uniformly punctate. *Scutellum* small, triangular, impunctate. *Elytra* not broader at base than prothorax, each elytron has three longitudinal impunctate spaces on the disc, converging towards the apex, each space being enclosed between two regular rows of punctures; the areas between these spaces, and that between the suture and the first space, are more or less confusedly and closely punctate; while along the lateral margin there is a

broad impunctate space, bounded on the extreme margin by a row of punctures and on the inner side by two longitudinal series of punctures, themselves enclosing a narrower impunctate interval: the punctures are in some specimens surrounded by dark rings: besides these large punctures there are very minute and sparsely distributed punctures, visible under a high power, on the whole surface. *Underside* thinly covered with fine hairs.

Length, 4¼ mm.

BURMA: Teinzo, v. 1886 (*Fea*); Bhamo, vi. 1886 (*Fea*); Karen Mts., v–xii. 1888 (*Fea*). ASSAM: Khasi Hills.

Type in the Genoa Museum.

244. **Sphæroderma fulvipennis**, *Illiger*.

Haltica fulvipennis Illig., Mag. Insektenkunde, vi, 1807, p. 156.

Almost of the form of a *Cyphon*, ovate, somewhat convex, very shining, the legs and underside with the usual short adpressed hairs; black, the first two segments of the antennæ, the mouth, the underside of the prothorax, and the breast brownish, the scutellum brown, the elytra oak coloured or brownish-yellow. Between the roots of the antennæ is an elevation in the form of a keel, and over this is a median longitudinal impressed line meeting with two obliquely impressed lines. The head is narrower than the prothorax, the latter is narrower than the elytra, nearly twice as broad as long, somewhat narrowed in front, with front margin widely emarginate, posterior margin also widely emarginate, sides rounded, lateral margins with a channel, hind angles somewhat bluntly produced; the round edge of each side is brown, the front angles thickened and broadened; upper side transversely convex, smooth and impunctate. The elytra are very finely punctate, towards the apex smooth and impunctate.

Length, 1⅝ lin. [about 3⅓ mm.]; breadth, 1⅕ lin. [about 2⅖ mm.].

BENGAL (*Daldorff*).

I am unaware of the location of the *type* of this species. The above is taken from the original description in German.

In the 'Bulletin of the Imperial Society of Naturalists of Moscow,' xxxix, 1866, part 1, no. 2, pp. 420–422, Motschulsky described the following species from the regions under review:—(1) *Sphæroderma viridipennis* (Nuwara Eliya, Ceylon), (2) *Sphæroderma orbiculata* ("East India"), (3) *Sphæroderma gracilenta* (Nuwara Eliya, Ceylon), (4) *Sphæroderma fulva* ("Continental India"), (5) *Sphæroderma rufopicta* (Nuwara Eliya, Ceylon).

No. (1) was placed in Gemminger and Harold's 'Catalogue of Coleoptera,' vol. xii (Munich, 1876), in the genus NISOTRA; No. (2) is described by comparing it with *Sph. javana*, Motsch. (Java), which is again compared with *Sph. indica*, F. (described, despite its name, from the Cape of Good Hope); No. (3) is described by comparing it with *Sph. testacea*, F. (Europe): No. (4) by

comparing it with *Sph. gracilenta*, Motsch.; and No. (5) by comparing it with the European *Sph. testacea*, F.

Although I have no means of examining the species described by Motschulsky, I cannot entirely ignore them. They are, therefore, enumerated here without being incorporated in the generic key or in the body of this work.

Genus **IVALIA**, *Jacoby*.

Ivalia, Jac., Proc. Zool. Soc. Lond. 1887, p. 100.

Genotype. Three species were described when this genus was erected, and the first of these, *Ivalia viridipennis*, Jac., is here designated as the genotype.

Body ovate, very convex. *Head* broad, with vertex smooth and convex, frontal tubercles and interantennal carina obsolete; bases of antennæ not very close together, but remote from the eye-margins. Antennæ short, hardly extending beyond the base of the pronotum, usually with the seven apical segments thickened. *Prothorax* broader than long, uniformly convex and smooth above, without any impression at all. *Scutellum* small, insignificant. *Elytra* not broader at the base than the prothorax, confusedly and closely punctate. *Underside*: prosternal process narrowly elongate; anterior coxal cavities open behind; mesosternum transverse; front and middle legs much shorter than the hind ones; posterior femora strongly incrassate; posterior tibiæ much longer than either the front or middle tibiæ, somewhat broadened at the apex, the outer edge furnished with a series of spinules, the apex with a long curved spine, the upper surface not deeply channelled (as Jacoby erroneously states; the channelled appearance is an optical illusion); posterior tarsi long, with first segment equal to the following two together, second segment small, third, *i. e.* the bilobed segment, also small, claw-segment long, somewhat thickened at the apex, projecting much beyond the bilobed segment; claws appendiculate.

Range. Ceylon.

Key to the Species.

Elytra metallic green	*I. viridipennis*, Jac., p. 330.
Elytra metallic purplish or cupreous	*I. metallica*, Jac., p. 331.
Elytra dark brown	*I. fulvipennis*, Jac., p. 332.

245. **Ivalia viridipennis**, *Jacoby*.

Ivalia viridipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 100.

Body ovate, pointed towards the apex. General colour rich brown; elytra metallic green; seven apical segments of antennæ black, three basal brownish, fourth piceous: the rich brown colour may be reddish-brown. Out of five specimens before me, two,

which are somewhat larger, presumably females, have the extreme apices of the elytra brown. Scutellum pitch-brown.

Head brown, with vertex impunctate; interocular space with a faintly impressed V-shaped mark. Antennæ extending a little distance beyond the base of the pronotum; first segment large and club-shaped, second thicker but not longer than third, fourth about equal in length to fifth; from thence the segments are gradually thickened and more hairy, forming an elongated club. *Prothorax* broader than long, convex, front margin straight, posterior margin widely arched, sides more or less straight, anterior lateral angles thickened and oblique, posterior rounded; surface very finely and not very closely punctate. *Scutellum* triangular, broader than long, smooth and impunctate. *Elytra* confusedly and strongly punctate. the punctures being much stronger than those on the pronotum.

In the smaller specimens, presumably males, the posterior tibiæ have the spinules on their outer edges more marked than in the larger examples, but in both sexes the tibia is somewhat bent and the outer edge of the apical curved end bears a series of minute spinules. In the males the front and middle tarsi are somewhat larger.

Length of ♀, 2½ mm.; of ♂, 2 mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*); Dikoya, 3800–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type in the British Museum.

246. **Ivalia metallica**, *Jacoby*.

Ivalia metallica, Jac., Proc. Zool. Soc. Lond. 1887, p. 100.

In the shape of the body, in the pointed apical end of the elytra, and in other structural characters generally this species resembles *I. viridipennis*, Jac., but the coloration is different. The four basal segments of the antennæ are brown; the underside and legs pitch-black; the seven apical segments of the antennæ black; pronotum metallic blue-green; elytra metallic purplish or cupreous; scutellum black.

Head with vertex impunctate, frontal tubercles obsolete, with a V-shaped impression on the interocular space and an oblique impressed line on each side behind the eye. Antennæ extending only a little behind the base of the pronotum; first segment long and club-shaped, second thicker but not longer than third, fourth shorter than third and about equal in length to fifth; after this the segments are gradually thickened, forming an elongate club. *Prothorax* broader than long, sides straight, anterior lateral angles thickened; surface convex, finely and not very closely punctate; besides this punctuation the whole surface, seen under a high power, shows fine granulation. *Scutellum* triangular, broader than long, its surface smooth and impunctate.

Elytra closely, strongly and confusedly punctate, the punctures being stronger than those on the pronotum. *Underside*: posterior tibiæ somewhat bent, much longer than those of the front and middle legs; along their outer edge the spinules are larger and not close together, but near the apex they are smaller and much closer together; the apical spine is very long; first segment of the posterior tarsi longer than the following two together.

Length, $2\frac{1}{4}$ mm.

CEYLON: Bogawantalawa, 4900-5200 ft., 21.iii-4.iv.1882 (*G. Lewis*).

Type in the British Museum.

247. Ivalia fulvipennis, *Jacoby*.

Ivalia fulvipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 101.

Body strongly convex, narrowed towards the apex, but not so pointed as in *I. viridipennis* or *I. metallica*. Head, prothorax, scutellum, underside and femora pitch-black; the seven apical segments of the antennæ black, their four basal segments, the

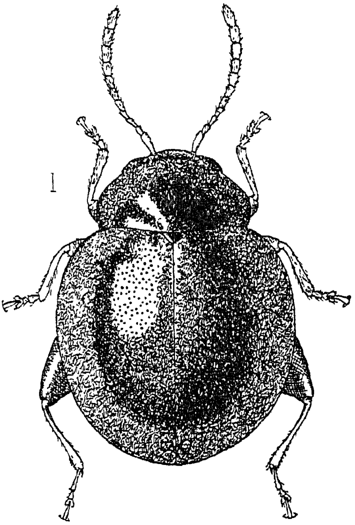

Fig. 119.—*Ivalia fulvipennis*, Jac.

tibiæ, and tarsi dark brown, but not so deep a shade as the underside; elytra dark reddish-brown.

Head broader than long, vertex impunctate except for a few extremely fine scattered punctures which are only visible under a high power, frontal tubercles and carina absent. Antennæ extending slightly beyond the base of the pronotum; first segment

long and club-shaped, second thicker but shorter than third, fourth shorter than third; from the fifth the segments are thicker. *Prothorax* much broader than long, sides straight, anterior lateral angles thickened, basal margin forming a very wide arch, almost straight; surface convex, smooth, shining, seen under a high power to be extremely minutely and sparsely punctate. *Scutellum* broader than long, triangular, with apex broadly rounded, surface smooth, impunctate. *Elytra* closely, strongly, and confusedly punctate. *Underside*: posterior tibiæ much longer than those of the front and middle legs, somewhat bent, their outer edge with a series of spinules, which are smaller and closer together near the apical end than in the more proximal parts; first segment of posterior tarsi somewhat longer than the following two together.

Length, $2\frac{1}{4}$ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

Genus LONGITARSUS, *Latreille*.

Longitarsus, Latr., Cuvier's Règn. Anim. 2 ed. v, 1829*, p. 155; Chapuis, Gen. Col. xi, 1875, p. 69; Fowler, Col. Brit. Isl. iv, 1890, p. 335.

Teinodactyla, Chevrolat, in d'Orbigny, Dict. univers. d'Hist. Nat. [original edition †] xii, 1848, p. 440.

Teinodactila (sic), Motschulsky, Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, pp. 416-418.

Thyamis, Stephens, Illustr. Brit. Ent. iv, 1831, p. 307.

GENOTYPE: *Chrysomela atricilla*, Linn. (Fauna Suec. 1761, p. 166; Europe). In proposing the genus, Latreille cited several species, from amongst which I select this species as the genotype.

This genus is very large and includes a great variety of forms. But in spite of this diversity the following characters are constant in the genus: the insects are generally small; the antennæ are fairly long and slender, extending to beyond the middle of the elytra, or even exceeding the length of the insect; the posterior femora are well thickened; the posterior tibiæ are long, gradually broadened, and flat above towards the apex, which ends in a distinct, well-developed and sharp spine; the portion of the hind tibiæ which is gradually broadened is not channelled on the outer surface, although in some cases it may appear so owing to the edges being dark; the internal edge has a fringe of fine hairs and the outer has equally a fringe and a series of spinules, more

* Chapuis, Scudder, and Agassiz quote Latreille's 'Familles Naturelles du Règne animal' (Paris, 1825, p. 405) as the work in which this genus was first published; but, although the genus is first mentioned there, it was not until 1829, in Cuvier's 'Règne animal,' that a description (with the citation of several species) of *Longitarsus* appeared.

† Not the new edition, which is differently paginated.

numerous near the apex, gradually becoming smaller and finally disappearing as the proximal end of the tibia (which is sometimes slightly curved) is approached; the posterior tarsi are long, often as long as the corresponding tibiæ, and *the first segment should be always as long as half the tibia.* There are species (mostly African) in which the length of the first segment of the hind tarsus is such that it becomes a matter of difficulty to determine exactly whether the species belongs to this genus or not. Although no such doubtful species have, so far, been found in our regions, it may be mentioned that Jacoby described, at long intervals, one and the same species as *Longitarsus kanarensis* and *Aphthona kanarensis.* These remarks are made in order to draw attention to the fact that the character on which the genus is founded is by itself not definitive, and that there exist transitional cases.

Head with vertex almost always impunctate, frontal elevations often obsolete and, when present, never very strongly developed, interantennal carina varying in length, height, and sharpness; mouth-parts somewhat exserted; sometimes there are well-impressed oblique channels in front, which extend tangentially to the upper margins of the eyes and meet at a point in the middle; eyes always well developed and black. Basal segment of antennæ always long and club-shaped, second small and very often thicker than third; the relative lengths of the second to fourth segments vary and can be made use of in separating species; the following segments are more or less equal in length, sometimes the two or three apical segments are shorter, and the last is always pointed. *Prothorax* always broader than long, although not very much so, sides straight or rounded, each of the anterior and posterior lateral angles bearing a long fine seta (figs. 120, 123); when the seta is not visible, it has probably been accidentally broken off, but a little elevated pore always indicates its position; often the edge at the anterior angles is obliquely truncate and somewhat thickened; surface gently convex, often punctate, sometimes indistinctly so and sometimes impunctate; in many cases the punctures are finer than those on the elytra. *Scutellum* small, triangular, with apex very often rounded, and with surface smooth and impunctate. *Elytra*: the relation of the breadth of the bases of elytra and prothorax varies within a small range; their surface is punctate, often indistinctly and confusedly, sometimes comparatively more strongly, and the punctures in some cases tend to arrange themselves in longitudinal rows. *Hind wings* absent in some species. *Underside*: anterior coxal cavities open behind; legs more or less slender, the front and middle pairs similar but the hind pair different; the structure of these latter is described above; tarsi often slender, the bilobed segment not very broad, the claw-segment projecting beyond the bilobed segment; claws well formed; abdominal sternites almost always sparsely covered with fine hairs

Range. World-wide.

Key to the Species.

1. Elytra shining blue....................	*L. cyanipennis*, Bryant, [p. 337.
Elytra shining black	2.
Elytra differently coloured..............	6.
2. Head, pronotum and underside brown, posterior femora shining brownish-black; elytra shining black, very regularly punctate-striate	[p. 338. *L. nigripennis*, Motsch.,
Head and pronotum black like the elytra; the latter not regularly punctate-striate.	3.
3. Large insects (3½ mm. long and about 2 mm. broad); body narrowing somewhat behind the prominent shoulders and then broadening again to a certain extent ..	*L. krishna*, sp. n., p. 340.
Insects always smaller than the above dimensions; outline of body a uniform curve, gently narrowing towards the apex, without the constriction in the middle described above	4.
4. Elytral punctures feeble; interstitial spaces finely reticulate	*L. singhala*, sp. n., p. 341.
Elytral punctures bold and distinct; interstitial spaces smooth, shining, not finely reticulate	5.
5. Larger insects (3 mm. long); third segment of antennæ distinctly longer than second	*L. almoræ*, sp. n., p. 342.
Small insects (about 1½ mm. long); third segment of antennæ about equal to second	*L. lewisi*, sp. n., p. 342.
6. Colour of the greater part of the disc of the elytra smoky; hind wings absent ..	7.
No such combination of characters	8.
7. Each elytron with a longitudinal ridge extending from the humerus	*L. liratus*, sp. n., p. 343.
Elytron with no such ridge	*L. fumidus*, sp. n., [p. 344.
8. Colour brown, a round spot on the elytra, their apex, and the suture behind black.	*L. nigronotatus*, Jac., [p. 344.
Body with no such markings............	9.
9. Suture stained distinctly darker than the colour of the elytra*	10.
Suture not so stained	15.
10. Each elytron with a longitudinal black stripe..............................	[p. 345. *L. strigatus*, sp. n.,
Elytra with no such stripe..............	11.
11. Head, underside, suture very narrowly, scutellum and apex of femora black; fourth segment of antennæ distinctly longer than third....................	[p. 345. *L. birmanicus*, Jac.
No such combination of characters	12.
12. There are a few distinct punctures across the interocular space	13.
Interocular space without such punctures..	14.

* This section does not include Motschulsky's species *sutura-nigra* and *suturellus*; see pages 359, 360.

13. Upper side light brown, underside not piceous	*L. rangoonensis*, Jac., [p. 346.
Upper side dark brown, underside piceous.	*L. madurensis*, Jac., [p. 347.
14. Small insects ($1\frac{1}{2}$ mm. long); punctures on the elytra close and arranged with some regularity in longitudinal rows	*L. hina*, sp. n., p. 347.
Larger insects ($2\frac{1}{2}$ mm. long); punctures on the elytra confused	*L. belgaumensis*, Jac., [p. 348.
15. Punctures on the elytra bold, deep and large	16.
Punctures on the elytra distinctly fine or almost obsolescent	21.
16. Large insects ($2\frac{3}{4}$ or nearly 3 mm. long); elytral punctures confused	*L. gavira*, sp. n., p. 349.
Smaller insects; elytral punctures arranged to a certain extent in close longitudinal rows	17.
17. Body completely piceous, with antennæ and legs (except the posterior femora) brown	*L. malina*, sp. n., p. 349.
Body not so coloured	18.
18. Colour light brown	*L. sari*, sp. n., p. 350.
Colour not light brown	19.
19. Colour entirely dark red-brown; second segment of the antennæ shorter than third	*L. puncti*, sp. n., p. 350.
Colour not entirely dark brown; second segment of antennæ about equal to third.	20.
20. Colour dark red-brown, but the apices of the posterior femora are black; pronotum and elytra concolorous	*L. tavoya*, sp. n., p. 351.
Colour dark red-brown, with pronotum blackish; apices of femora not black	*L. lohita*, sp. n., p. 352.
21. Body always broad and large (3–$3\frac{1}{2}$ mm. long and 2 mm. broad); colour always brownish-yellow or pale brown	22.
No such combination of characters. Body always smaller; colour generally dark brown, but sometimes paler	23.
22. Elytra apparently impunctate (seen under a low power, about 10 diameters); scutellum black; sides of prothorax straight	*L. recticollis*, Jac., p. 352.
Elytra (seen under a lens magnifying 10 diameters) finely and closely punctate; scutellum not black; sides of prothorax rounded	*L. gola*, sp. n., p. 353.
23. Antennæ with the four apical and three basal segments light brown and the four intermediate segments darker, the colours contrasting; second segment somewhat longer than third	*L. ochraceicornis*, sp. n., [p. 353.
No such combination of characters	24.
24. Antennæ much longer than the body	*L. longicornis*, Jac., [p. 354.
Antennæ not longer than the body	25.
25. General body-colour red or red-brown	26.
General body-colour not red-brown	27.

26. Legs black, except the bases of the femora and posterior tibiæ; antennæ black, except the two basal segments .... *L. rufipennis*, Jac., [p. 355.

Legs not black but brown, except the apical half of the posterior femora, which is black; antennæ generally brown, but sometimes the six or seven apical segments are somewhat darker .... *L. sundara*, sp. n., [p. 356.

27. Body winged, parallel-sided; general colour pale brown; elytra indistinctly punctate .... *L. pandura*, sp. n., [p. 357.

Body wingless, not parallel-sided; elytra minutely but distinctly punctate ...... 28.

28. Colour dark brown; clypeus and apices of the posterior femora black: colour of apical segments of antennæ darker than that of basal segments .... *L. championi*, sp. n., [p. 358.

Colour a light dirty brown; clypeus not black; basal and apical segments of antennæ concolorous .... *L. anu*, sp. n., p. 359.

Eight of Motschulsky's species are enumerated on pp. 359–361, but are not included in this key.

248. **Longitarsus cyanipennis**, *Bryant*.

Longitarsus cyanipennis, Bryant, Ann. & Mag. Nat. Hist. (9) xiv, 1924, p. 249.

Body oblong, colour of elytra blue; head, prothorax, and scutellum blue-black; underside black; apex of first segment, and second and third segments, of antennæ brownish mixed with piceous; basal portion of first segment piceous, rest of the antennal segments black; legs dark piceous, with the femora of a deeper shade, red-brown at the points of articulation.

Head gently convex, with vertex impunctate, frontal tubercles absent, interantennal carina not sharp; vertex delimited by two oblique impressions running above the eyes and converging towards the middle; eyes not so convex as in other species; clypeus somewhat convex and with a few scattered whitish hairs. Antennæ in the male extending to the apex of the elytra and in the female somewhat shorter; first segment long and club-shaped, second much shorter, third longer than second but shorter than fourth; the rest of the segments more or less nearly equal to each other, gradually somewhat thickened and more hairy, the last pointed. *Prothorax* slightly broader than long, sides rounded, the four corners rounded and each with a distinct long seta; surface gently convex, finely and sparsely punctate, the punctures being more sparse in front than towards the base. *Scutellum* sharply triangular, broader than long, impunctate. *Elytra* broader at base than prothorax, somewhat broadened at the middle and then slightly narrowing; surface strongly and confusedly punctate, the punctures being much stronger than those of the pronotum.

Underside sparsely covered with whitish hairs. The posterior tibia in the female specimen from Lahul is without the apical spine; in the male the spine is present, but not prominent in the type-specimen. First segment of posterior tarsi about half the length of the corresponding tibia and about equal to the following segments together.

Length of male, 2½ mm.; of female, 3 mm.

PUNJAB: Lahul * (type-locality), 19. viii. 1922 (*O. H. Walters*). UNITED PROVINCES: Kumaon, Sarju Valley, 5000 ft.; Almora, 7000–9000 ft., vi. 1917; Naini Tal, vii. 1923 (all *H. G. Champion*). DARJEELING: Gopaldhara (*Stevens*).

Type in the British Museum.

249. **Longitarsus nigripennis,** *Motschulsky*.

Teinodactila nigripennis, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 418.

The species described below is assumed to be the same as Motschulsky's *L. nigripennis*, because it agrees with his description of the coloration and, so far, this is the only species before me which has this particular combination of colours. The following is a translation of Motschulsky's original description in French, which appears immediately after his description of *Longitarsus undulatovittatus* from Ceylon (see p. 361):—

"A closely related but smaller species from the continent of India, *T. nigripennis*, Motsch., is very remarkable for its coloration, having the head and pronotum testaceous and the elytra black."

I have adopted this name because Dr. G. A. K. Marshall has already applied it to this particular insect from South India, where it is a pest of cultivated plants, and also because it has already been used in this connexion in current literature.

Body oblong, broad. Head, antennæ, prothorax, underside and legs brown: elytra shining black: posterior femora shining brownish-black; underside of a deeper shade of brown; antennæ and legs of a lighter shade; scutellum dark brown.

Head with vertex impunctate, frontal tubercles not prominent, interantennal space raised and with a sharp central longitudinal ridge, which is continued to the wedge-shaped clypeus. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second shorter, third longer and thinner than second, fourth slightly shorter than third, fifth to eighth more or less nearly equal, ninth, tenth and eleventh somewhat shorter and slightly thickened. *Prothorax* broader than long, posterior margin with a not very strong lobe in the middle, anterior lateral angles oblique, sides straight, the fine setæ long and prominent, at least at the posterior lateral angles in the two specimens before me; surface somewhat convex, almost impunctate but for a few

* A locality in the hills, in the Jullundur [Jalandhar] Division.

very fine indistinct punctures here and there. *Scutellum* triangular; apex broadly rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, very regularly punctate-striate, each elytron having eleven longitudinal rows, including a short sutural and an extreme marginal row; the punctures in the rows are very fine and not strongly impressed (although towards the base they are comparatively more so than towards the apex, where they are obsolescent), and in each row they are not placed very close to each other; interstices flat and smooth, the interval between the last row and the last but one broader than the others;

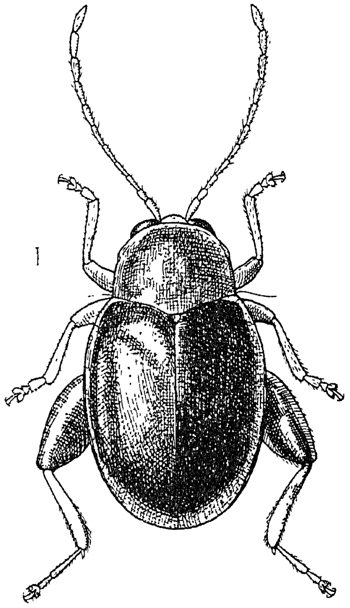

Fig. 120.—*Longitarsus nigripennis*, Motsch.

lateral margins somewhat pronounced. *Underside*: elytral epipleura broad and the same breadth throughout, terminating just before reaching the apex; abdominal sternites with a few scattered whitish hairs at the sides; posterior tibiæ short, gradually broadened towards the apex, terminating there with a sharp and curved spine, and with the rounded ventral side thickly covered with bristly hairs, more thickly towards the distal end; the outer lateral edges of the hind tibiæ are without the series of short spinules which is usual in *Longitarsus*; the inner and outer lateral edges equally set with bristly hairs; first segment of the posterior tarsi more than half the length of the corresponding tibia, while the whole tarsus equals the length of the tibia.

Length, $2\frac{1}{2}$ mm.; *breadth*, $1\frac{1}{2}$ mm.

SOUTH INDIA: Malabar District, Taliparamba, 30. ix–4. x. 1917 (*Ramakrishna*).

The location of Motschulsky's *type* is unknown to me.

The above description is taken from the two specimens in the British Museum from the above locality; they were sent by Mr. T. V. Ramakrishna Ayyar to the Imperial Bureau of Entomology, where the insect was determined by Dr. G. A. K. Marshall from Motschulsky's description. For notes on life-history see p. 101.

In that this insect possesses punctate-striate elytra, the striæ being placed at regular intervals, and that the outer edge of the posterior tibiæ is without a series of spinules, it differs from the general type of the species of *Longitarsus* and may in the future become the basis of a new genus.

250. **Longitarsus krishna** *, sp. nov.

Body oblong, elytra somewhat constricted behind the humerus and then broadened again behind. Colour shining black; antennæ piceous; legs red-brown; posterior femora and abdominal sternites of a much darker shade of red-brown.

Head with vertex impunctate, frontal tubercles well developed, bases of the antennæ globular and very close together, inter-antennal carina sharp, clypeus raised; eyes strongly convex. Antennæ slender, extending to a little distance beyond the middle of the elytra; first segment long and club-shaped, second small and thickened, third longer than second, almost equal to, or very slightly shorter than, fourth; the following segments about equal and more hairy. *Prothorax* somewhat broader than long, very slightly narrowed behind, sides straight, anterior lateral angles oblique, posterior rounded, the setæ at these four corners clearly visible; surface punctate, the punctures being more crowded towards the base than in front, where they are very sparse. *Scutellum* triangular, with apex broadly rounded and with surface smooth and impunctate. *Elytra* much broader at base than prothorax, humerus rounded; surface confusedly punctate, the punctures being much coarser than those of the pronotum, while in the middle they tend to form longitudinal rows. *Underside*: legs slender, sparsely covered with fine whitish hairs; abdominal sternites also covered with similar hairs, more particularly the apical segments; posterior tibiæ very long, somewhat expanded at the apex, with the usual row of small spines as well as fine hairs on the outer margin, apical spine prominent; first segment of posterior tarsi equal to about half the length of the posterior tibia, while the whole tarsus almost equals the tibia.

Length, $3\frac{1}{2}$ mm.; *breadth* behind, nearly 2 mm.

BURMA: Ruby Mines (*Doherty*). ASSAM: Manipur, two examples (*Doherty*).

Type in the British Museum. Described from three examples.

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* Sanskrit, "black."

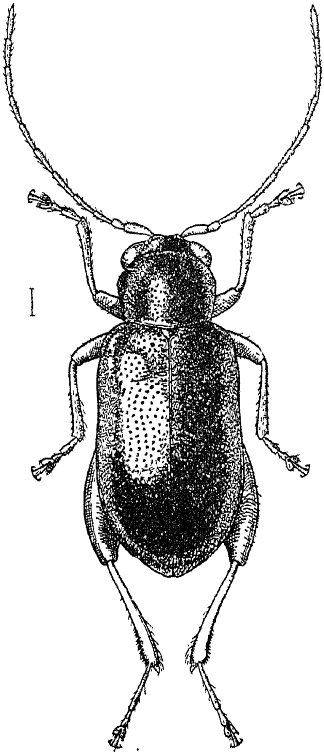

Fig. 121.—*Longitarsus krishna*, Maulik.

251. Longitarsus singhala *, sp. nov.

Body oblong. Colour of upper side, underside, and femora of all the legs, shining black; the antennæ and all the tibiæ and tarsi, light brown.

Head with vertex impunctate, frontal elevations and inter-antennal ridge developed. Antennæ about as long as the body; first segment long and club-shaped, second shorter than first, thicker than, and about equal in length to, third, fourth distinctly longer than third; the following segments longer and more or less nearly equal to each other. *Prothorax* broader than long, sides very gently rounded, anterior angles oblique; surface, seen under a high power, extremely finely and sparsely punctate, the punctures more numerous towards the base than in front; the whole interstitial surface is not perfectly smooth and shining,

* Sanskrit name for Ceylon.

but shows a fine reticulation. *Scutellum* small, triangular, with apex broadly rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, humerus prominent, sides gradually narrowing towards apex; surface confusedly punctate, some punctures at the base tending to arrange themselves in a longitudinal line; interstitial spaces finely reticulate. *Underside* smooth, shining; abdominal sternites thinly covered with fine hairs; first segment of posterior tarsi about half the length of the corresponding tibia.

Length, 2 mm.

CEYLON: Galle, on coast-level, 27. xi–4. xii. 1881 (*G. Lewis*).

Type in the British Museum. Described from one example.

252. **Longitarsus almoræ**, sp. nov.

Body oblong. Colour black; antennæ, anterior and middle legs and posterior tibiæ brown, the posterior tibiæ of a deeper shade.

Head with vertex impunctate, with two oblique deeply impressed channels delimiting the front border of the vertex and meeting in the middle; on each side, situated in the deep channel, is a shallow pit; frontal elevations oblique, interantennal ridge sharply elevated and extending to the clypeus. Antennæ as long as the body; first segment long and club-shaped, second shorter than the first, thicker and also somewhat shorter than third, fourth very slightly longer than third; the rest of the segments elongate and more or less nearly equal. *Prothorax* broader than long, sides gently rounded, anterior lateral angles oblique, posterior angles each with a prominent fine seta; surface gently convex, distinctly punctate, the punctures being irregularly distributed, comparatively closer towards the base and becoming more and more sparse towards the front margin. *Scutellum* small, triangular, with apex broadly rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, sides more or less nearly parallel, but the elytra narrow somewhat towards the apex; surface comparatively strongly and confusedly punctate; interstices smooth, shining, not reticulate. *Underside*: abdominal sternites sparsely covered with thin hairs; posterior tibiæ with a spine at the apex and a series of spinules on the outer edge; first segment of the posterior tarsi half the length of the corresponding tibia.

Length, 3 mm.

UNITED PROVINCES: Kumaon, W. Almora (*H. G. Champion*).

Type in the British Museum. Described from one example.

253. **Longitarsus lewisi**, sp. nov.

Body oblong. Colour black; front and middle legs dark brown; the three basal segments of the antennæ and the posterior tarsi lighter brown, the rest of the antennal segments darker brown.

Head with vertex convex, impunctate, frontal elevations not developed, interantennal space indistinctly elevated. Antennæ

about as long as the body; first segment long and club-shaped, second thicker than, and about equal to, third, fourth slightly longer than third; the rest about equal in length and slightly and gradually thickened. *Prothorax* broader than long, sides gently rounded; surface convex, distinctly punctate, the punctures becoming sparse towards the apex. *Scutellum* small, triangular, with apex rounded and surface impunctate. *Elytra* broader at base than prothorax, sides more or less nearly parallel, rounded towards the front angles; surface confusedly and comparatively strongly punctate, the punctures being stronger than those of the pronotum; interstices smooth and shining. *Underside*: posterior tibiæ with a spine at the apex and a series of spinules on the outer edge, particularly towards the apex; first segment of posterior tarsi half the length of the corresponding tibia.

Length, $1\frac{1}{2}$ mm.

Ceylon: Horton Plains, 6000 ft., 18–20. iii. 1882 (*G. Lewis*).

Type in the British Museum. Described from three examples.

254. **Longitarsus liratus**, sp. nov.

Body narrow, constricted at the base of the prothorax and elytra, and narrowing towards the apex; wingless. General colour dirty brown; elytra, except the apical part and the lateral margins, abdominal sternites, and apices of the posterior femora smoky.

Head with vertex impunctate, front somewhat convex, inter-antennal carina sharp, surface between the bases of the antennæ and the eyes convex. Antennæ as long as the body; first segment long and club-shaped, second much shorter, third slightly longer than second, fourth much longer than third: the following segments elongate and about equal. *Prothorax* broader than long, sides rounded; surface distinctly and strongly punctate, and besides the punctures the whole surface has a certain rugosity. *Scutellum* small, triangular with the apex rounded, impunctate. *Elytra* not broader at base than prothorax; from the humerus extends a longitudinal ridge, which delimits the smoky discal surface from the brown marginal part; seen from above the ridge is quite prominent at the base but not so behind, but when viewed sideways at a certain angle the ridge can be seen to continue backwards and to disappear towards the apex of the elytron; surface distinctly but confusedly punctate, besides which it is granulate. *Underside*: compared with the size of the insect the legs appear long; posterior tibiæ long, with the usual series of spinules on the external edge, and ending in a long spine; first segment of the posterior tarsi half the length of the corresponding tibia.

Length, $2\frac{1}{2}$ mm. As the head and prothorax of the particular specimen from which the above description is drawn up are somewhat stretched, the actual length may be 2 mm.

Nilgiri Hills (*G. F. Hampson*).

Type in the British Museum.

Described from one example. The general build, shape and structure of the elytra give it a characteristic appearance and, when lying on its side, the insect is not unlike a flea. It is a very interesting species.

255. Longitarsus fumidus, sp. nov.

Body ovate, narrowed at the base, somewhat broadened in the middle and then narrowed behind; wingless. General colour brown; elytra almost wholly smoky, except a little portion at the apex and a part at the base; the margin is brown, but the smoky colour suffuses its middle portion to a certain extent; front of the head and apices of the posterior femora also smoky or black.

Head with vertex impunctate, frontal elevations almost obsolete, interantennal carina short. Antennæ nearly as long as the body; first segment long and club-shaped, second much smaller and distinctly shorter than third, fourth slightly longer than third; the following segments elongate, more or less nearly equal, the four apical segments somewhat thicker. *Prothorax* broader than long, slightly narrowed at base, sides feebly rounded; surface gently convex, feebly and finely punctate. *Scutellum* triangular with the apex broadly rounded, broader than long, with surface finely granulate. *Elytra* not broader at base than prothorax; surface confusedly and distinctly punctate. *Underside*: the posterior tibiæ, as usual in the genus, long, with the spinules on the external edge, and ending in a spine; first segment of the posterior tarsi half the length of the corresponding tibia.

Length, $2\frac{1}{4}$ mm.

NILGIRI HILLS (*G. F. Hampson*).

Type in the British Museum. Described from one example.

256. Longitarsus nigronotatus, *Jacoby*.

Longitarsus nigronotatus, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 259.

Body oblong. Colour pale brown; antennæ, except the four basal segments, piceous; a rather large round spot in the middle of the elytra, their apices and the suture behind, black; underside generally piceous, in some parts lighter than in others; apices of posterior femora blackish.

Head impunctate, frontal elevations small, nearly joined to the clypeus, which is strongly convex and impunctate; eyes large, the space dividing them narrower than their diameter. Antennæ hardly extending to the middle of the elytra; first segment long and club-shaped, second half as long as first, thicker than, and about equal in length to, third, third and fourth small and equal; the following segments very slightly thickened and somewhat longer. *Prothorax* broader than long, sides straight, anterior

angles obliquely truncate, base with a distinct, slightly sinuate and transverse furrow; surface finely and sparingly punctate, more closely so behind the furrow. *Elytra* distinctly broader at base than prothorax; surface with fine punctures, placed in irregular rows; at first sight the punctuation appears more confused than seriate, and the series cannot be counted. *Underside* more shining than upper side; abdominal segments sparsely covered with fine hairs; first segment of posterior tarsi but little longer than the following segments together.

Length, 2 mm.

BURMA: Tharrawaddy.

Type in the British Museum.

This species is closely allied to *L. binotatus*, from Shanghai.

257. **Longitarsus strigatus**, sp. nov.

Body oblong. Colour brown with the suture narrowly piceous; a longitudinal, ill-defined, stripe on each elytron blackish; antennæ blackish, except the three basal segments, which are brown; the fourth is not so pronouncedly blackish as the following segments, and the eleventh is partly brown, but blackish at the apex.

Head with vertex impunctate, frontal elevations absent, inter-antennal carina indistinct. Antennæ as long as the body; first segment long and club-shaped, second shorter, third hardly longer than second, fourth much longer than third; fourth to tenth elongate, equal, the eleventh pointed. *Prothorax* broader than long, sides slightly sinuate at the middle, anterior lateral angles oblique, each of the posterior lateral angles bearing a long fine seta; surface impunctate. *Scutellum* small, triangular, impunctate. *Elytra* distinctly broader at base than prothorax, humerus prominent; surface punctate, the punctures being to a certain degree arranged in longitudinal rows. *Underside*: posterior tibiæ long, with the usual series of spinules along the exterior edge and ending in a long spine; first segment of the posterior tarsi as long as half the corresponding tibia.

Length, 2 mm.

TENASSERIM: Tavoy (*Doherty*).

Type in the British Museum. Described from one example.

258. **Longitarsus birmanicus**, *Jacoby*.

Longitarsus birmanicus, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 921.

Head, underside and suture (the last very narrowly) piceous; labrum entirely black; palpi testaceous; apical segments of antennæ fuscous, the four basal segments testaceous; apices of posterior femora black; scutellum black; pronotum and elytra (excepting the suture) brown.

Head with vertex impunctate, frontal elevations absent; eyes very large. Antennæ extending to the end of the elytra; fourth segment distinctly longer than third. *Prothorax* somewhat broader than long, sides straight, anterior angles oblique; surface with a few extremely fine punctures, only visible under a strong lens. *Elytra* hardly widened at the middle, shoulders rounded, obtuse; surface with extremely fine punctures, which are without any arrangement. *Underside*: first segment of posterior tarsi half the length of the tibia.

Length, 2½ mm.

BURMA: Karen Hills, Asciuii-Ghecù, 1400–1500 metres (*Fea*).

Type in the Genoa Museum.

259. **Longitarsus rangoonensis**, *Jacoby*.

Longitarsus rangoonensis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 920.

Body oblong. Colour light brown; antennæ, except the three basal segments, and apical half of posterior femora, blackish or pitch-brown; the suture piceous, this colour being somewhat narrow at the commencement, then broadening, and not extending quite to the apex. More than three basal antennal segments may be light brown, and also the sutural dark colour does not always reach the base.

Head with a few punctures between the eyes; frontal tubercles not prominent, though not quite absent, area between the antennæ raised; eyes strongly convex. Antennæ extending to rather more than half the length of the elytra; first segment long and club-shaped, second shorter and thicker than, but about equal to, third, fourth slightly longer than third (but not nearly double the length, as Jacoby states, or at least not in the example before me, which bears a label of identification in Jacoby's handwriting); the rest of the segments about equal and more hairy. *Prothorax* broader than long, sides rounded, anterior angles oblique and posterior rounded; surface finely and rather closely punctate. *Scutellum* triangular, broader than long, smooth, impunctate. *Elytra* somewhat broader at base than prothorax; surface finely and rather closely punctate, the punctures being more prominent than those of the pronotum. *Underside*: apices of posterior tibiæ somewhat broadened; first segment of posterior tarsi about half the length of the corresponding tibia.

Length, 2½ mm.

BURMA: Rangoon, 1887 (*Fea*).

The above description is taken from one example in the British Museum, bearing Fea's and Jacoby's labels, and marked "type." But I do not think it is the actual *type*, which is presumably in the Genoa Museum.

260. **Longitarsus madurensis**, *Jacoby.*

Longitarsus madurensis, Jac., Ann. Soc. Ent. Belg. xl. 1896, p. 258.

Body oblong. Upper side dark brown; underside piceous; labrum black; suture narrowly black; posterior femora and pygidium piceous; four basal segments of antennæ brown, the rest black; head obscure piceous or dark brown.

Head with a row of distinct punctures placed transversely between the eyes, otherwise impunctate; clypeus with an acute and long central ridge. Antennæ extending to the middle of the elytra; first segment long and club-shaped, second much shorter than first and hardly shorter than third, fourth somewhat longer than third; from the fifth to the end the segments are about equal, somewhat thickened and more hairy. *Prothorax* broader than long, sides rather strongly rounded, the four angles rounded and the fine setæ at the four corners distinct; surface rather convex, finely and closely punctate, some of the punctures slightly elongate in shape. *Scutellum* triangular, broader than long, impunctate. *Elytra* distinctly broader at base than prothorax, very slightly widened towards the middle, the apex of each elytron separately rounded; closely and confusedly punctate, the punctures rather larger and stronger than those on the pronotum. *Underside*: first segment of posterior tarsi half the length of the tibia; the spinules along the outer edge of the posterior tibiæ extending to a considerable distance towards, but not reaching, the base.

Length, $2\frac{1}{2}$ mm.

MADRAS: Madura. UNITED PROVINCES: Kumaon, Haldwani District (*H. G. Champion*).

Type in the British Museum.

261. **Longitarsus hina** *, sp. nov.

Body oblong. Colour pale brown; elytra somewhat greyish; the three or four apical segments of the antennæ, scutellum, suture, and apical portion of the femora, piceous; sometimes the colour is darker, and a larger portion of the femora, with the breast, may be piceous.

Head with vertex impunctate, and with oblique impressed lines meeting in the middle; frontal elevations small and not prominent, interantennal space broadly elevated. Antennæ extending to a certain distance beyond the middle; first segment long and club-shaped, second smaller, thicker and about equal in length to third, fourth longer than third, fifth longer than fourth; the last three somewhat thickened. *Prothorax* somewhat broader than long, sides rounded, the four corners each having a fine seta; surface smooth, slightly convex and indistinctly punctate. *Scutellum* triangular, insignificant. *Elytra* broader at base than prothorax,

* Sanskrit, "smaller."

closely punctate; the punctures are arranged in close longitudinal striæ, although the regularity of the arrangement is not definite enough to admit of the rows being counted; the punctures are larger than those on the pronotum. *Underside*: first segment of posterior tarsi half the length of the corresponding tibia, which has the usual apical spine and the spinules along the external edge.

Length, 1½ mm.

United Provinces: Kumaon, Ranikhet, Bhatkot (*H. G. Champion*).

Type in the British Museum. Described from six examples.

262. **Longitarsus belgaumensis**, *Jacoby*.

Longitarsus belgaumensis, Jac., Ann. Soc. Ent. Belg. xl. 1896, p. 260.

Body oblong, parallel-sided. Colour obscure brown; antennæ brown, with several of the apical segments darker; labrum black; suture very narrowly piceous; posterior femora black at the apex.

Head impunctate, without frontal elevations, clypeus with a central ridge; eyes strongly convex. Antennæ not quite extending to the apex of the elytra; first segment long and club-shaped, second about half the length of the first, third slightly longer than second but distinctly shorter than fourth; the following segments elongate, slender and about equal. *Prothorax* somewhat broader than long, sides slightly rounded near the base, anterior lateral angles oblique; the pore from which the seta rises is placed at a little distance before the middle on each side; surface apparently impunctate, but under a high power some extremely fine dots are seen, and towards the base, in certain lights, very fine longitudinal wrinkles are visible. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* subcylindrical; surface distinctly, confusedly and not very closely punctate, besides which the whole surface is minutely granulate.

Length, 2½ mm.

Bombay: Belgaum (type-locality). Madras: Palni Hills, Neutral Saddle, 500 ft., 13–15. ix. 1922 (*S. Kemp*); Nilgiri Hills (*G. F. Hampson*); Shervaroy Hills, Yercaud, 5000–8000 ft., 7. viii. 1917 (*Y. R. Rao*). Bihar: Pusa, on san leaf, 4. viii. 1915 (*U. Bahadur*, Pusa Coll.). United Provinces: Kumaon, Haldwani District, Ranikhet, and W. Almora (taken on *Quercus dilatata*), 7000–9000 ft., vi. 1917 (all *H. G. Champion*). Assam: Manipur (*Doherty*). Ceylon: Colombo, on coast level, 7–27. iv. 1882 (*G. Lewis*); Kandy, vi. 1908 (*G. E. Bryant*); Nuwara Eliya, 6234–8000 ft., 8–11. ii. 1882 (*G. Lewis*).

Type in the British Museum.

This species has a wide distribution in India and Ceylon. It occurs in the North as well as in the South, at high elevations as well as on the sea-coast. One specimen from Manipur, taken by Doherty, is referable to this species. It is therefore to be

expected that there will be a certain amount of variation in the individuals—a fact which may render difficult the identification of a catch of only one or two examples.

263. Longitarsus gavira *, sp. nov.

Body oblong, broad. Colour shining brown; apices of posterior femora and the eight apical segments of the antennæ, black.

Head with vertex convex, impunctate, frontal elevations and interantennal carina not strongly developed. Antennæ somewhat less than, or almost equal to, the length of the body (*i. e.*, they are about two and a half millimetres long); first segment long and club-shaped, second much shorter than first and almost equal to third, fourth longer than third; the following segments almost equal. *Prothorax* broader than long, sides rounded, anterior lateral angles oblique, at each of the posterior lateral angles a small and fine seta is visible; surface gently convex, very finely and sparsely punctate. *Scutellum* triangular, with apex broadly rounded and surface smooth and impunctate. *Elytra* distinctly broader at base than prothorax, confusedly and strongly punctate; in the example before me the punctures have dark centres. *Underside*: posterior tibiæ quite characteristic of the genus, having the series of spinules along the outer edge and a strong spine at the apex; first segment of posterior tarsi half the length of the corresponding tibia.

Length, $2\frac{3}{4}$ or nearly 3 mm.

UNITED PROVINCES: Kumaon, W. Almora, viii. 1917 (*H. G. Champion*).

Type in the British Museum. Described from one example.

264. Longitarsus malina †, sp. nov.

Body oblong. Colour shining piceous; antennæ, front and middle legs, and posterior tibiæ, brown.

Head with vertex convex, impunctate, frontal elevations absent, with two oblique impressed lines meeting in the centre of the front, interantennal carina sharp. Antennæ extending to a little distance beyond the middle of the elytra; first segment long and club-shaped, second much shorter than first, thicker than, and about equal in length to, third, fourth slightly longer than third, fifth about equal to fourth; from the sixth the segments are very slightly thickened, and the last is pointed. *Prothorax* broader than long, sides straight but rather oblique, anterior lateral angles oblique, each of the four angles possesses a fine seta; surface gently convex and punctate, the punctures somewhat larger and more crowded towards the base than towards the front margin, where they are finer and sparser. *Scutellum*

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* Sanskrit, "deep."

† Sanskrit, conveying the sense of "dirty-coloured."

small, insignificant, triangular, with apex rounded. *Elytra* distinctly broader at base than prothorax, sides narrowing somewhat behind the humerus and then very slightly broadening; surface strongly punctate, the punctures having a certain amount of arrangement in longitudinal series, although this arrangement is not very clear. *Underside*: posterior tibiæ with the usual series of spinules on the outer edge near the apex, which is furnished with a spine; first segment of posterior tarsi half the length of the corresponding tibia.

Length, $2\frac{1}{4}$ mm.

UNITED PROVINCES: Kumaon, W. Almora (*H. G. Champion*).

Type in the British Museum. Described from nine examples.

265. **Longitarsus sari** *, sp. nov.

Body oblong. Colour entirely light brown.

Head with vertex impunctate, frontal elevations oblique, weakly developed, interantennal carina short, not prominent. Antennæ extending to some distance beyond the middle of the elytra, but not reaching their apex; first segment long and club-shaped, second much shorter than first, thicker than, and about equal in length to, third, fourth much longer than third, fifth almost equal to fourth; the following segments about equal to each other. *Prothorax* broader than long, sides somewhat rounded; surface gently convex, very finely and sparsely punctate towards the base, while the part near the front margin is almost impunctate. *Scutellum* small, triangular, with apex rounded and surface smooth. *Elytra* broad, distinctly broader at base than prothorax, sides almost parallel, apex rounded; surface strongly and boldly punctate, the punctures having a certain degree of arrangement in longitudinal striæ. *Underside*: posterior tibiæ, as usual in the genus, with a series of spinules on the outer edge and with the apex ending in a spine: first segment of posterior tarsi half the length of the corresponding tibia.

Length, 2 mm.

BOMBAY: Belgaum (Andrewes Coll.).

Type in the British Museum. Described from seven examples.

In one specimen, which is darker brown than the others, the punctures on the pronotum are quite distinct and more numerous than is usual, the front part being also punctate.

266. **Longitarsus puncti** †, sp. nov.

Body oblong. Colour entirely shining dark red-brown.

Head with vertex impunctate, frontal elevations not developed, two oblique impressed lines meeting in the middle of the front,

* Sanskrit, "a row."
† Sanskrit, meaning, like *sari*, "a row."

and interantennal carina well developed. Antennæ extending almost to the end of the body; first segment long and club-shaped, second much smaller than first and thicker but shorter than third; the following segments more or less nearly equal. *Prothorax* broader than long, slightly narrowed behind, sides somewhat rounded, anterior lateral angles oblique; surface gently convex, distinctly and sparsely punctate, some of the punctures towards the base being rather stronger. *Scutellum* small, triangular, with apex rounded and surface smooth. *Elytra* distinctly broader at base than prothorax, sides almost parallel, broadly rounded at the apex; surface strongly punctate, the punctures having a certain degree of regularity in their arrangement as longitudinal striæ. *Underside*: posterior tibiæ long, with a series of spinules on the outer edge near the apical end, which is supplied with a spine; first segment of posterior tarsi half the length of the corresponding tibia.

Length, $2\frac{1}{4}$ mm.

ASSAM: Sadiya (*Doherty*; type-locality); Patkai Mts. (*Doherty*). BURMA: Ruby Mines (*Doherty*).

Type in the British Museum.

Described from four examples, of which one from Sadiya and another from the Patkai Mountains are somewhat smaller than the type.

267. **Longitarsus tavoya**, sp. nov.

Body oblong. Colour dark red-brown; apices of posterior femora black; last segment of the antennæ a little darker.

Head with vertex impunctate, frontal elevations and interantennal carina feebly developed. Antennæ extending almost to the end of the body; first segment long and club-shaped, second and third almost equal, fourth much longer than third; the following segments elongated and equal, except the last three, which are slightly shorter. *Prothorax* broader than long, sides more or less nearly straight, anterior lateral angles somewhat oblique; surface gently convex, distinctly and sparsely punctate. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* broad, distinctly broader at base than prothorax; surface strongly punctate, the punctures having a certain degree of regularity in their disposition in longitudinal striæ. *Underside*: posterior tibiæ long, somewhat curved, with the outer edge (near the apex, and to a certain extent above it) having a series of spinules, the apex ending in a spine; first segment of the posterior tarsi half the length of the corresponding tibia.

Length, $2\frac{1}{4}$ mm.

TENASSERIM: Tavoy (*Doherty*).

Type in the British Museum. Described from one example.

268. Longitarsus lohita *, sp. nov.

Body oblong. Colour dark red-brown: pronotum blackish.

Head with vertex impunctate, frontal elevations not well developed, oblique, bounded above by oblique deep channels, interantennal carina also present. Antennæ extending to about the middle of the elytra, first segment long and club-shaped, second shorter than first but thicker than, and about equal in length to, third, fourth distinctly longer than third; the following segments about equal and somewhat thickened. *Prothorax* broader than long, sides more or less nearly straight, anterior lateral angles oblique; surface gently convex, finely and very sparsely punctate. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* distinctly broader at base than prothorax, strongly punctate, the punctures arranged with some degree of regularity in longitudinal series. *Underside*: posterior tibiæ somewhat curved, with the outer edge bearing a series of spinules, and the apex furnished with a spine: first segment of posterior tarsi half the length of the corresponding tibia.

Length, 2 mm.

ASSAM: Sadiya (*Doherty*).

Type in the British Museum. Described from three examples.

269. Longitarsus recticollis, *Jacoby*.

Longitarsus recticollis, Jac., Ann. Soc. Ent. Belg. xlii. 1898, p. 188.

Body oblong. Colour pale shining brown; labrum, antennæ (the three or four basal segments excepted), scutellum, sides of the breast and the posterior femora, dark pitch-brown or black; the basal half of the posterior femora lighter than the apical half.

Head smooth and impunctate, frontal tubercles small and oblique, clypeus broad and strongly raised. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second much shorter than first, third somewhat longer than second and equal to fourth; the following segments very slightly longer, about equal to each other, and more hairy. *Prothorax* somewhat broader than long, sides straight, anterior lateral angles straight; surface entirely impunctate. *Scutellum* triangular, with apex very broadly rounded, broader than long, the surface impunctate. *Elytra* broader at base than prothorax; surface apparently impunctate, but under a high power extremely minute punctures are visible, while, in addition, dark round spots, showing through the transparent superficial layer of chitin, simulate punctures; these spots are not arranged in any regular order. *Underside*: first segment of posterior tarsi about equal to

* Sanskrit, "red."

the following segments together (including the claw-segment); spine at the apex of the posterior tibiæ short and stout.

Length, 3 mm.; *breadth*, about 2 mm.

CALCUTTA (type-locality). BIHAR: Pusa, "on grass," 4. ii. 1906, 16. ix. 1910 (Pusa Coll.). UNITED PROVINCES: Kumaon, Haldwani Division (*H. G. Champion*). CEYLON: Colombo, "on coast level," 7–27. iv. 1882 (*G. Lewis*).

Type in the British Museum. There are in the Indian Museum, Calcutta, specimens which were determined at the time when Jacoby drew up the original description.

270. **Longitarsus gola** *, sp. nov.

Body oblong, broad. Colour pale brownish-yellow; sides of breast and the posterior femora deep brown; five or six apical segments of antennæ piceous; scutellum rather darker than the surrounding parts.

Head with vertex impunctate, frontal elevations obsolete, interantennal space raised. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second much shorter than first, somewhat thicker than, and about equal in length to, third, fourth distinctly longer than third; the following segments about equal, the last three somewhat thickened, and the last pointed. *Prothorax* broader than long, sides rounded, anterior lateral angles thickened; surface gently rounded, distinctly, finely and somewhat closely punctate. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, then somewhat broadening behind the base and slightly narrowing again towards the apex; surface distinctly, finely and confusedly punctate. *Underside*: posterior tibiæ long, broadened at the apex, which is armed with a long spine, their outer edge with a series of spinules arranged in the usual way; first segment of posterior tarsi half the length of the corresponding tibia.

Length, $3\frac{1}{2}$ mm.; *breadth*, 2 mm.

UNITED PROVINCES: Kumaon, W. Almora Division, iii. 1917 (*H. G. Champion*).

Type in the British Museum. Described from one example.

271. **Longitarsus ochraceicornis**, sp. nov.

Body oblong, the elytra somewhat widened in the middle and then narrowing a little behind. Colour dirty brown; the three basal and the four apical segments of the antennæ light brown, the four intermediate segments (fourth to seventh) darker; the contrasting colours of the segments stand out conspicuously and give the insect a characteristic appearance; posterior femora somewhat darker brown.

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* Sanskrit, "round."

Head with vertex impunctate, frontal elevations absent, inter-antennal carina sharp, though not very well developed. Antennæ about as long as the body; first segment long and club-shaped, second not much shorter than first, thicker and somewhat longer than third, fourth longer than third, fourth, fifth and sixth more or less nearly equal; the following segments slightly thickened and longer. *Prothorax* slightly broader than long, or almost quadrate, sides almost straight, anterior lateral angles thickened, each of the four angles with a fine seta; surface very gently convex and impunctate. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* slightly broader at base than prothorax; surface punctate, the punctures being fine (some of them indistinct), not very close together and generally confused. *Underside*: posterior tibiæ long, with the outer edge furnished with spinules, and ending in a spine at the apex; the whole of each posterior tarsus is about equal in length to the corresponding tibia, the first segment being half the length of the tibia.

Length, 1½ mm.

Ceylon: Kandy, vii. 1908 (*G. E. Bryant*); Bogawantalawa, 4900–5200 ft., 28. ii.–12. iii. 1882; Kitulgalle, 1700 ft., 17–20. i. 1882; Dikoya, 3800–4200 ft., 21. i.–7. ii. 1882. Three examples taken by G. Lewis, one from each of the three latter localities, are darker in general colour, although the characteristic antennal coloration is present.

Type in the British Museum. Described from eight examples.

272. Longitarsus longicornis, *Jacoby*.

Longitarsus longicornis, Jac., Proc. Zool. Soc. Lond. 1887, p. 87.

Body ovate, convex. Colour obscure testaceous; apices of the femora piceous; labrum and palpi piceous; elytra somewhat darker than prothorax.

Head quadrate, about as broad as long, entirely impunctate; frontal tubercles scarcely indicated. Antennæ slender, longer than the body; first segment long and club-shaped, second shorter than first, third distinctly shorter than fourth but longer than second, fourth to ninth about equal, tenth and eleventh somewhat shorter. *Prothorax* somewhat broader than long, broadened in front, narrowed behind, sides slightly rounded, anterior lateral angles obliquely truncate, the seta at each of the four corners distinctly long; surface entirely impunctate. *Scutellum* triangular, broader than long, impunctate. *Elytra* ovate, narrowed near the base and at the apex; surface extremely minutely and not closely punctate, the punctures only visible under a high power. *Underside*: first segment of posterior tarsi rather longer than the following three together; claw-segment projecting much beyond the bilobed segment; claws strong.

Length, 2¼ mm.: *length of antenna*, 3½ mm.

Ceylon: Bogawantalawa (*G. Lewis*).

Type in the British Museum.

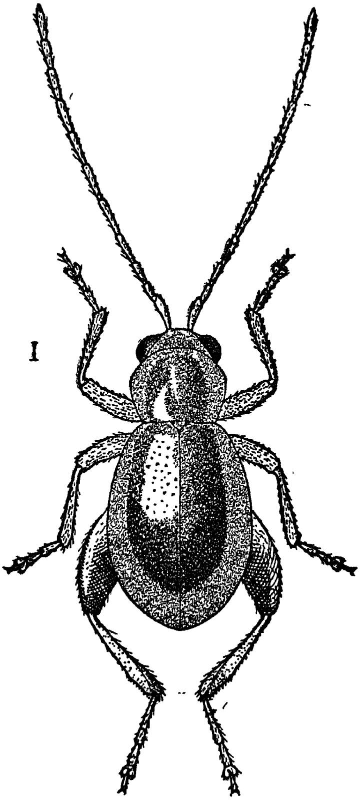

Fig. 122.—*Longitarsus longicornis*, Jac.

273. **Longitarsus rufipennis**, *Jacoby*.

Longitarsus rufipennis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 260.
Longitarsus fulvobrunneus, Jac., Ann. Soc. Ent. Belg. xlvii, 1904, p. 390.

Body ovate; wingless. Colour dark brown or reddish; antennæ black, except the two basal segments and the third, which is only partly black; this latter colour gradually becomes more intense on the distal segments; legs black; bases of femora and posterior tibiæ brown; palpi piceous.

Head impunctate, frontal elevations only indicated, central longitudinal carina raised. Antennæ comparatively stout, extending to the point where the elytra slope down; first segment long and club-shaped, second much shorter than first, third shorter

than fourth but longer than second; the following segments elongate and about equal, except the last two, which are somewhat shorter; the basal segments are less hairy than the apical. *Prothorax* scarcely one-half as broad as long, somewhat narrowe at the base, sides feebly rounded at the middle, anterior lateral angles oblique; surface impunctate and, when seen under a high power, minutely granulate. *Scutellum* triangular, broader than long, impunctate. *Elytra* narrowed at the base, widened towards the middle; seen under a high power the surface is minutely and not very closely punctate, but under a low power it may appear impunctate: it bears some obscure blackish spots. As stated above, the *hind wings* are absent. *Underside*: legs long and stout; first segment of posterior tarsi somewhat less than half the length of the tibia, second segment about half the length of the first.

Length, 2½ mm.

MADRAS: Madura (type-locality of *L. rufipennis*). PONDICHERRY (type-locality of *L. fulvobrunneus*).

Types of both *rufipennis* and *fulvobrunneus* in the British Museum.

I have carefully examined the types of *rufipennis* and *fulvobrunneus*, and am unable to find any substantial difference to justify their being regarded as separate species.

274. Longitarsus sundara,* sp. nov.

Body oblong. Colour of elytra red; head and pronotum darker, the latter sometimes black: apical half of posterior femora always black; antennæ generally brown, but sometimes the six or seven apical segments are rather darker, though not very definitely so.

Head with vertex impunctate, frontal tubercles absent, interantennal ridge sharp. Antennæ extending to nearly the end of the body; first segment long and club-shaped, second much shorter, third slightly longer than second, fourth distinctly longer than third; the following segments about equal. *Prothorax* broader than long, the sides rounded; surface gently rounded, very finely and not very closely punctate. *Elytra* distinctly broader at base than prothorax; surface finely punctate, the punctures having an indefinite longitudinal serial arrangement. *Underside*: posterior tibiæ long, with the usual spinules along the exterior edge, and ending in a long spine at the apex; first segment of posterior tarsi half the length of the corresponding tibia.

Length, 2¼ mm.

ASSAM: Sadiya (*Doherty*; type-locality); six other examples from Manipur (*Doherty*).

* Sanskrit, "beautiful."

Type in the British Museum. The species is described from seven examples.

Two of the Manipur specimens are somewhat narrowed towards the apex of the elytra, not so rounded in that region as are the others; in one specimen the pronotum is black, in another piceous, and in two others still less dark; thus a gradation in this colour can be recognised.

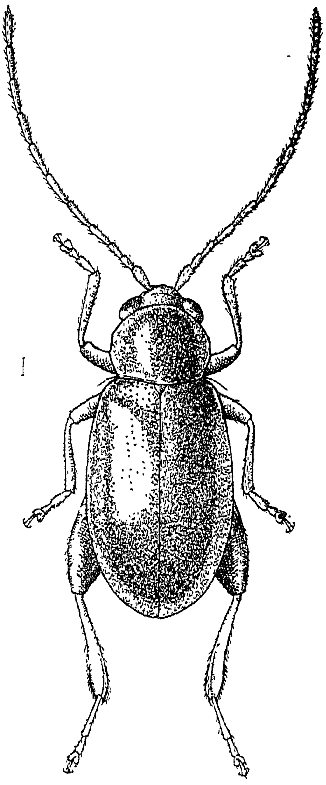

Fig. 123.—*Longitarsus sundara*, Maulik.

275. Longitarsus pandura *, sp. nov.

Body oblong, parallel-sided. General colour pale brown; the seven apical segments of the antennæ darker; apices of the posterior femora also sometimes darker brown.

* Sanskrit, meaning a shade of brown.

Head with vertex impunctate, frontal elevations and inter-antennal carina feebly developed, the former separated from the front by two oblique channels which meet in the centre. Antennæ slender, extending beyond the middle of the elytra; first segment long and club-shaped, second shorter, much thicker than third, the latter slender, hardly longer than the second, fourth longer than third, fifth to ninth more elongate, slender, the last two somewhat shorter. *Prothorax* somewhat broader than long, sides almost straight, anterior lateral angles slightly thickened; surface gently convex and impunctate. *Scutellum* small, triangular, with apex rounded and surface smooth and impunctate. *Elytra* somewhat broader at base than prothorax, sides almost parallel, apex rounded; surface indistinctly, minutely and confusedly punctate. *Hind wings* present. *Underside*: posterior tibiæ somewhat broadened at the apex, with the usual spinules on the outer edge, and ending in a spine; first segment of the corresponding tarsi half the length of the tibia.

Length, $1\frac{3}{4}$ mm.

CEYLON: Kandy, vi. 1908 (*G. E. Bryant*); Peradeniya, 12. x. 1913 (*A. Rutherford*); Bogawantalawa, 4900–5200 ft., 21. iii–4. iv. 1882 (*G. Lewis*).

Type in the British Museum. Described from eight examples. The specimen collected by Mr. Lewis is much darker brown in general colour than the others.

276. **Longitarsus championi**, sp. nov.

Body suboblong; wingless. Colour dark brownish, not an uniform brown; head somewhat darker brown; clypeus black; the basal segment and four or five apical segments of the antennæ slightly darker brown; dorsum of abdomen black, which shows through the more or less transparent elytra; front and middle legs lighter brown; apices of posterior femora black.

Head: vertex impunctate, frontal elevations slightly developed, interantennal carina present. Antennæ about as long as the body; first segment long and club-shaped, second shorter than first, thicker than, and about equal in length to, the third, fourth longer than third, fifth to eighth about equal, the following segments somewhat thicker. *Prothorax* broader than long, sides (viewed from above) oblique but straight, slightly widening towards the front angles, which are thickened, posterior angles rounded, each bearing a fine seta; surface very finely, sparsely and indistinctly punctate, and this can only be seen under a high power. *Scutellum* triangular, with apex rounded, surface smooth and impunctate. *Elytra* somewhat broader at base than prothorax; surface finely but distinctly punctate, the punctures not very close to each other on the disc but closer along the sides, and arranged more or less in longitudinal rows. *Underside*:

posterior tibiæ somewhat curved, with the usual spinules on the outer edge, with a spine at the apex; the whole of each posterior tarsus is just a little shorter than the corresponding tibia, with the first tarsal segment about half the length of the tibia.

Length, a little less than 2 mm.

UNITED PROVINCES: Kumaon, W. Almora (*H. G. Champion*).

Type in the British Museum. Described from four examples.

277. Longitarsus anu *, sp. nov.

Body small, ovate, narrowed at the base of the prothorax and elytra, then broadened behind; wingless. Colour dirty light brown; abdominal sternites and posterior femora blackish.

Head with vertex impunctate, frontal elevations and inter-antennal carina not strongly developed. Antennæ as long as the body; first segment long and thickened, second and third about equal in length, but the second is thicker, fourth longer than third; the following segments are elongate and about equal. *Prothorax* somewhat broader than long, slightly narrowed at the base, sides almost straight; surface gently convex and impunctate. *Scutellum* small, triangular, with apex broadly rounded, impunctate. *Elytra* narrowed and not broader than the prothorax at the base; surface minutely and distinctly, but confusedly, punctate, the punctures not very close. *Underside*: characters of posterior tibiæ and tarsi as usual in the genus.

Length, $1\frac{1}{2}$–$1\frac{3}{4}$ mm.

CEYLON: Peradeniya, 3. ix. 1914 (*A. Rutherford*).

Type in the British Museum. Described from four examples.

The following eight species of Motschulsky are enumerated here, but not included in the key on pp. 335–357. In no case have the types been examined, and these are possibly lost. The descriptions are freely translated from the originals in Latin or, in some cases, French :—

Longitarsus sutura nigra, *Motschulsky*.

Teinodactila sutura nigra, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 416.

In form and colour resembling *T. nigrocilla*, but more than twice as large. Elongate-ovate, convex, shining; reddish-testaceous, with the antennæ (their bases excepted), eyes, scutellum, suture broadly, margins of the elytra, and underside, black; knees and posterior tibiæ black; all the tarsi infuscated.

Length, $1\frac{1}{4}$ lin.; *breadth*, $\frac{3}{4}$ lin.

CEYLON: mountains of Nuwara Eliya.

* Sanskrit, "minute," "very small."

Longitarsus suturellus, *Motschulsky.*

Teinodactila suturella, Motsch., *l. c.*

In form and colour resembling the former species, but smaller. Tibiæ and tarsus testaceous. Elongate-ovate, convex, shining, subfuscous-testaceous, with the eyes, and the suture very narrowly, black, and the apex of the antennæ, posterior knees and underside infuscated.

Length, 1 lin.; *breadth,* ½ lin.

CEYLON: mountains of Nuwara Eliya.

Longitarsus atripes, *Motschulsky.*

Teinodactila atripes, Motsch., *t. c.,* p. 417.

In form and colour resembling the preceding species except that the suture shares the general colour of the body. Elongate-ovate, convex, shining, reddish-testaceous, with antennæ, eyes and legs black, tibiæ and bases of antennæ a little infuscated.

Length, 1 lin.; *breadth,* ½ lin.

CEYLON: mountains of Nuwara Eliya.

Longitarsus albescens, *Motschulsky.*

Teinodactila albescens, Motsch., *l. c.*

A closely related but slightly smaller species occurs in Continental India. It is principally distinguished by the whitish colour of the elytra and by the legs being testaceous, except the posterior femora, which are smoke-coloured.

Longitarsus simplex, *Motschulsky.*

Teinodactila simplex, Motsch., *l. c.*

In form and colour resembles *T. lurida,* but is a little smaller, and the prothorax is narrower. Elongate-ovate, convex, reddish-testaceous, with antennæ and legs paler, eyes black, and prothorax subquadrate.

Length, ¾ lin.; *breadth,* ¼ lin.

CEYLON: Nuwara Eliya.

Longitarsus paria, *Motschulsky.*

Teinodactila paria, Motsch., *l. c.*

The continent of India also presents a species very nearly related, *T. paria,* Motsch., which is a little shorter and has the head and the anterior part of the antennæ strongly infumated.

Longitarsus undulatovittatus, *Motschulsky.*

Teinodactila undulatovittata, Motsch., *l. c.*

Form of *T. dorsalis* but more oblong. Elongate-ovate, subconvex, shining, testaceous, the antennæ apically subclavate, the head and an undulated vitta on each elytron black, the prothorax subquadrate, reddish-testaceous.

Length, 1 lin.; *breadth*, ½ lin.

CEYLON: Colombo.

Longitarsus morio, *Motschulsky.*

Teinodactila morio, Motsch., *t. c.*, p. 418.

In form and colour resembles *T. anchusæ* but is shorter and smaller by one-half. Oblong-ovate, convex, shining, punctate the base of the antennæ and the legs testaceous, the posterior legs infuscated; humerus somewhat prominent.

Length, ¾ lin.; *breadth*, ¼ lin.

CEYLON: mountains of Nuwara Eliya. There is a specimen doubtfully determined as this species in the British Museum.

Genus **LUPEROMORPHA**, *Weise.*

Luperomorpha, Weise, Wiegmann's Archiv. f. Naturg. liii, part 1, 1887, p. 202.

GENOTYPE, *Luperomorpha trivialis*, Weise (Siberia). This was the species for which the genus was erected. A specimen of *L. trivialis*, Weise, from Korea, identified by Heikertinger, is in the British Museum, and this example I have examined.

Head moderately large, somewhat long, with vertex slightly convex, frontal tubercles not strongly developed, interantennal carina well developed, sharp and short, clypeus small, transverse. Antennæ in the male longer than, and in the female about half as long as, the body; the first three segments comparatively thinner, the following segments somewhat broadened, the first segment as long as the following two together. *Prothorax* somewhat broader than the head, almost as broad as long, sides rounded, posterior lateral angles widely rounded, anterior lateral angles sometimes oblique and thickened, each furnished with a seta-bearing pore, the seta itself short; surface gently convex, often very finely alutaceous or finely granulate, and also punctate, the punctures being always fine and more or less sparse; no ante-basal transverse furrow. *Scutellum* triangular with apex rounded. *Elytra* somewhat broader than prothorax at base, sides almost parallel; surface generally punctate, the punctures being usually stronger than those on the pronotum; on the apical part there are a few scattered, erect, seta-like hairs, which are hardly visible unless seen in a suitable light and under a high power. *Underside*:

anterior coxal cavities open behind; the prosternal process between the anterior coxæ is narrow and the latter themselves are conically prominent; posterior femora thickened; posterior tibiæ not broadened at the apex, with a narrow sulcus on the outer surface, furnished with a terminal spine, and four times as long as the first segment of the tarsus.

RANGE. Siberia, Japan, India, Ceylon, Malaysia, etc.

Key to the Species.

1. Elytra uniformly black without any transverse or longitudinal fascia or band	*L. nigripennis*, Duviv., [p. 362.
Elytra not uniformly black	2.
2. Elytra black with a transverse white band behind the middle	*L. albofasciata*, Duviv., [p. 363.
Elytra with the suture and the lateral and apical margins black or piceous, and the central part longitudinally brown; when the black areas are broad the brown area is narrowed to the form of a band and *vice versâ*....	3.
3. Head black..........	*L. birmanica*, Jac., p. 363.
Head not black	4.
4. The dark stripe is uniform and regular all round each elytron, that on the lateral margin being not much broader than that on the sutural margin..........	*L. discoidea*, Jac., p. 364.
The lateral stripe on each elytron is distinctly broader at the middle than that on the suture, thus making the central brown area narrower at the middle	5.
5. Head and prothorax fawn-coloured; breast, antennæ and posterior femora pitch-brown; elytra brownish-black with a yellowish stripe	*L. vittata*, Duviv., p. 365.
The colour of all the brown parts is of the same tint, and when they vary they do so equally; *i. e.*, the brown colour on the elytra is not different from that of the other brown parts ..	*L. bombayensis*, Jac., p. 365.

278. Luperomorpha nigripennis, *Duvivier*.

Luperomorpha nigripennis, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 428.
Phyllotreta flaviventris, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 257.
Luperomorpha weisei, Jac., Ann. Soc. Ent. Belg. xlii, 1898, p. 189.

Body elongate, parallel-sided. Colour mainly black; prothorax and abdomen deep rich brown; scutellum and elytra black; palpi piceous; the three basal segments of the antennæ slightly stained with brown; anterior legs more or less stained with brown; posterior tibiæ sometimes brown.

Head impunctate, frontal tubercles small, triangular, the carina strongly raised, not very sharp. Antennæ extending nearly to the middle of the elytra; second and third segments short, about equal or the latter slightly longer than the former, fourth somewhat longer than fifth; the following segments somewhat thickened. *Prothorax* hardly broader than long, sides slightly rounded, gradually narrowed in front, posterior angles strongly oblique, anterior angles slightly produced and thickened; surface rather flattened, extremely minutely punctate. *Scutellum* smooth and impunctate. *Elytra* wider at the base than the prothorax; closely, finely and distinctly punctate.

Length, $3\frac{1}{4}$ mm.

Bombay: Belgaum (type-locality of *P. flaviventris*). Chota-Nagpur: Ranchi (*Irving*; type-locality of *L. weisei*). Nilgiri Hills (*H. L. Andrewes*). Mysore.

Type of *L. nigripennis* in the Brussels Museum. A cotype exists in the British Museum from Mandar, and after comparing this cotype with the types of *P. flaviventris* and *L. weisei* (both in the British Museum) I am of opinion that the three species are identical. The differences, viz., those in the front of the head and the apical portion of the abdomen, together with the smaller size, on which Jacoby relied to maintain *L. weisei* as a separate species, may well be regarded as individual variations.

279. Luperomorpha albofasciata, *Duvivier*.

Luperomorpha albofasciata, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 428.

Body somewhat oblong, more oval. Underside black; prosternum and anterior legs brown; antennæ and prothorax yellow; head reddish; scutellum and elytra black, each elytron behind the middle with a transverse white band (with irregular borders) which does not reach the margin; intermediate legs marked with brown, knees reddish.

Head smooth. *Prothorax* almost smooth, with very feeble impressions at the middle of the disc, extremely finely punctate. *Scutellum* very finely rugulose. *Elytra* distinctly punctate, rugulose, each with a longitudinal impression inside the shoulder, obliquely prolonged on the disc.

Length, $3\frac{1}{2}$ mm.

Darjeeling District: Kurseong (*Père Braet*).

Type in the Brussels Museum (unique). I have not seen this species.

280. Luperomorpha birmanica, *Jacoby*.

Aphthona birmanica, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 920.

Colour generally dark brown; head and antennæ black, the three basal segments of the latter piceous; elytra paler brown,

the margins more or less broadly piceous or black; scutellum, breast, and apices of hind femora piceous; coloration of the underside variable, the brown is stained with piceous and sometimes the hind legs are black.

Head impunctate, frontal elevations almost entirely obsolete, interantennal carina well developed. Antennæ half the length of the body; second and third segments short, about equal, or the latter slightly longer than the preceding one; the following segments somewhat thickened. *Prothorax* hardly broader than long, sides nearly straight, posterior angles distinctly oblique; surface without any impression, finely granulate, and with a few very fine punctures. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* broader at base than prothorax, extremely finely and confusedly punctate, and very finely granulate, the apical part of the surface bearing a few scattered erect setæ, which can be seen in a suitable light and under a high power.

Length, 3¼ mm.

BURMA: Pegu (*Fea*); Palon (*Fea*).

The actual *type* is in the Genoa Museum. There is also one example with Fea's label, and marked "type," in the British Museum.

281. **Luperomorpha discoidea**, *Jacoby*.

Phyllotreta discoidea, Jac., Proc. Zool. Soc. Lond. 1887, p. 84.

Head, prothorax and abdomen deep brown, the last segment of the abdomen black; antennæ, breast and legs black, the basal segments of the antennæ partly brown; elytra lighter brown with the suture and margins narrowly black, the sutural stripe generally narrowed near the base; front femora slightly stained with brown below, the points of articulation of the parts of the legs also much suffused with brown.

Head impunctate, frontal tubercles transverse, narrow, and very distinct. Antennæ half the length of the body; first segment long and club-shaped, third smaller than second, fourth longer than fifth; the following segments gradually thickened. *Prothorax* transversely quadrate, sides slightly rounded; surface finely granulate and punctate, rather flat, with a very obsolete and shallow depression at the middle of each side. *Scutellum* triangular, with apex rounded and impunctate. *Elytra* broader at base than prothorax, parallel, not covering the pygidium; surface finely granulate and punctate, the punctures being fine and not close together.

Length, 3 mm.

CEYLON: Bogawantalawa (*G. Lewis*); Kandy, vi. 1908 (*G. E. Bryant*); Galle, on coast-level, 27. xi–4. xii. 1881 (*G. Lewis*).

Type in the British Museum.

282. Luperomorpha vittata, *Duvivier.*

Luperomorpha vittata, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 427.

Body oblong. Head, prothorax, and underside fawn-coloured; palpi blackish; meso- and metasterna, antennæ (except the three basal segments, which are red-brown) and posterior femora pitch-brown; legs brown; scutellum brownish; elytra brownish-black, each having a large longitudinal yellowish stripe, rounded in front, sinuate on the outer side at the middle, and terminated before the apex. This species varies in the coloration of its various parts.

Head smooth, but under a high power appearing very finely granulate. Antennæ about half the length of the body, robust: second and third segments subequal, each of the following segments as long as the first, distinctly thickened and pubescent. *Prothorax* hardly broader than long, feebly narrowed in front and behind, anterior border straight, sides slightly rounded, base a little sinuate in front of the scutellum, posterior lateral angles rounded, anterior oblique and each with a pore from which rises a seta; surface finely punctate. *Scutellum* triangular. *Elytra* with the surface finely granulate and also finely punctate; the apical part of the surface has a few scattered hairs*.

Length, $3\frac{1}{2}$ mm.

CHOTA NAGPUR: Barway (*Père Cardon*).

Type in the Brussels Museum. I have not seen this species.

283. Luperomorpha bombayensis, *Jacoby.*

Phyllotreta bombayensis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 257.

Colour pale brown; antennæ (except the three basal segments), breast and legs more or less black; scutellum and elytra with the suture and lateral margins all round and the apex blackish; sometimes the blackish colour of the margins is so broad that the pale part forms a longitudinal stripe, narrowed in the middle; anterior legs and tibiæ partly stained with brown; abdominal segments lighter brown, the apex darker; labrum piceous. In some specimens the underside and legs, as well as the elytral margins, are obscure brown.

Head impunctate, frontal tubercles obsolete, clypeus with a distinct central ridge. Antennæ rather robust, extending to about the middle of the elytra; first segment long and club-shaped, second thickened, not shorter than the third, fourth and fifth more elongate, rather stout, as are also the following slightly shorter segments. *Prothorax* hardly broader than long, lateral margins very slightly rounded, posterior angles obliquely rounded;

* Probably very easily detached, as they are called in the original description "très caduques."

surface with a very obscure depression at each side, finely granulate and punctate. *Scutellum* triangular, with the apex rounded and surface impunctate. *Elytra* somewhat broader at base than prothorax, extremely minutely punctate.

Length, $3\frac{1}{4}$ mm.

BOMBAY: Belgaum; Dharwar.

Type in the British Museum.

This species and *L. discoidea* conform to the generic characters of *Luperomorpha*, particularly in the shape of the prothorax and the structure of the posterior tibiæ, but I cannot see any seta-like hairs on the apical part of the surface of the elytra.

Genus **APHTHONA**, *Chevrolat.*

Aphthona, Chevrolat, in d'Orbigny, Dict. univ. Hist. nat. ii. 1842, p. 5; Chapuis, Gen. Col. xi, 1875, p. 72; Fowler, Col. Brit. Is. iv, 1890, p. 368.

GENOTYPE: after the short diagnosis of this genus three species are mentioned by Chevrolat, of which the first is *Altica cyparissiæ*, Koch, Ent. Heft. ii, 1803, p. 80 (Europe). I find no record of the type of the genus having been fixed subsequently, and therefore the species mentioned above is hereby designated as the genotype.

This genus, being artificial, is very difficult to define. The form and size of the body vary considerably, and the colour also varies very much.

Head with vertex impunctate, and often furnished with oblique lines and tubercles. Antennæ not generally so long compared to the length of the body as in *Longitarsus*, hardly extending beyond the middle; the basal segments vary in length in relation to each other, but the first is always long and club-shaped. Eyes oval, more or less prominent. *Prothorax* broader than long, without a basal transverse depression, anterior lateral angles often obliquely truncate, each of the four corners usually furnished with a fine seta which rises out of a pore; surface usually punctate. *Scutellum* triangular with the apex rounded, surface generally impunctate. *Elytra* usually broader at the base than the prothorax, oblong, rounded at the apex; surface finely and confusedly punctate. *Underside*: prosternum very narrow; anterior coxal cavities open behind; posterior femora incrassate; posterior tibiæ dilated from base to apex, the outer side flat with the edges set with fine bristles, and the outer edge sometimes with spinules; the apex usually ends in a spine situated on the outer side, but this is sometimes absent altogether; first segment of posterior tarsi distinctly less than half the length of the corresponding tibia, second segment shorter, third bilobed, and fourth terminating in simple claws.

In some cases the males may be distinguished from the females by the more obtuse sutural angles of their elytra, by their com-

paratively thicker antennæ, and by the slight dilatation of the first segment of the tarsi.

Range. World-wide.

Key to the Species.

1.	Colour of upper side yellow-brown ..	2.
	Colour of upper side not yellow-brown.	5.
2.	Abdomen and underside black; apices of the femora not darker than their basal part........................	*A. atriventris*, sp. n., p. 368.
	No such combination of colours......	3.
3.	Scutellum black	4.
	Scutellum not black................	*A. kanaraensis*, Jac., p. 368.
4.	All the femora black; suture narrowly piceous	*A. nilgiriensis*, Jac., p. 369.
	Only the posterior femora black or deeply piceous; suture not piceous at all......................... .	*A. nigrilabris*, Duviv., [p. 370.
5.	Pronotum and elytra concolorous	7.
	Pronotum and elytra not concolorous..	6.
6.	Larger insects ($3\frac{1}{2}$ mm. long): pronotum reddish-brown; shoulders not prominently convex	*A. hugeli*, Jac., p. 371.
	Smaller insects (2 mm. long); pronotum yellow-brown; shoulders prominently convex........................	*A. lewisi*, Jac., p. 372.
7.	Colour of at least the upper side metallic.	8.
	Colour non-metallic	11.
8.	Entirely metallic bright blue; antennæ, tibiæ and tarsi black	*A. azurea*, Jac., p. 372.
	No such combination of colours	9.
9.	Upper side metallic greenish or bluish, underside piceous, antennæ and legs light brown	*A. indica*, Jac., p. 373.
	No such combination of colours	10.
10.	Upper side metallic dark blue, underside bluish-black	*A. andrewesi*, Jac., p. 374.
11.	Insects of a larger build ($2\frac{1}{4}$ mm. long); obscure piceous, generally the third, fourth, and fifth segments of the antennæ alternately bright brown and blackish	*A. proxima*, Jac., p. 374.
	Smaller insects ($1\frac{1}{4}$–$1\frac{1}{2}$ mm. long), without the characteristic antennal colouring described above..........	12.
12.	Body oblong ($1\frac{1}{2}$ mm. long), the elytra not widened at the middle; shining black, tarsi not brown	*A. vicina*, Jac., p. 375.
	Body ovate ($1\frac{1}{4}$ mm. long), the elytra distinctly widened at the middle; obscure piceous, tarsi brown	*A. ceylonensis*, Jac., p. 375.

Three of Motschulsky's species are added on p. 376, but are not included in the above key.

284. Aphthona atriventris, sp. nov.

Body oblong, almost parallel-sided. Colour yellow-brown; abdomen and underside black; apices of femora not darker brown than their basal part; the four or five apical segments of the antennæ somewhat darker brown than the others.

Head with vertex impunctate, channelled above the eyes, frontal elevations not strongly developed, interantennal carina short. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second shorter but thicker, about equal in length to the third, fourth very slightly longer than third, fifth to seventh about equal in length, the four apical segments somewhat thickened. *Prothorax* broader than long, sides rounded, anterior lateral angles somewhat thickened; surface gently convex, feebly and finely punctate. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, very finely and confusedly punctate, a few of the punctures on the disc having a tendency to arrangement in longitudinal rows. *Underside*: on the outer corner of the apex of the posterior tibia is a stronger and larger bristle; first segment of the corresponding tarsus less than half the length of the tibia.

Length, $2\frac{1}{4}$ mm.

UNITED PROVINCES: W. Almora, Sunderdhunga Valley, 8,000–12,000 ft. (*H. G. Champion*).

Type in the British Museum. Described from six examples.

285. Aphthona kanaraensis, *Jacoby*.

Aphthona kanaraensis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 255.
Longitarsus kanaraensis, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 389.

Body oblong, almost parallel-sided. Colour shining pale yellow-brown; the six apical segments of the antennæ black, the five basal segments brown; underside generally darker brown than the upper side; sides of the breast piceous, or sometimes the whole of the breast blackish; apices of posterior femora dark brown.

Head impunctate, obliquely channelled above the eyes, frontal elevations obsolete, interantennal carina short. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second small, thickened, third and fourth equal, each scarcely longer than the second; the following segments more elongate and slender. *Prothorax* somewhat broader than long, sides feebly rounded, the four corners more or less rounded; surface shining, impunctate. *Scutellum* small, triangular, impunctate. *Elytra* not wider at base than prothorax, subcylindrical and, when seen under a high power and in a suitable light, extremely minutely and confusedly punctate. *Underside*: posterior tibiæ with the usual spinules on the outer edge, but with no spine

at the apex; first segment of posterior tarsi as long as the following segments together, distinctly less than half the length of the corresponding tibia.

Length, 2–2½ mm.

BOMBAY: N. Kanara (*T. R. Bell*; type-locality). BIHAR: Pusa, 24. iv. 1906 (Pusa Coll.).

Type in the British Museum.

From *Longitarsus belgaumensis*, Jac. (p. 348), this species differs in having the antennæ shorter and with the segments of different relative lengths, and in the colour, the elytra being entirely brown and the sides of the breast black.

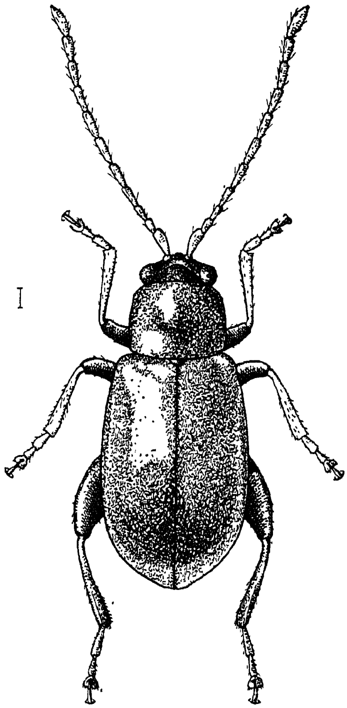

Fig. 124.—*Aphthona nilgiriensis*, Jac.

286. Aphthona nilgiriensis, *Jacoby*.

Aphthona nilgiriensis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 103.

Underside, legs and scutellum black; the three basal segments of the antennæ more or less dark brown, the remaining segments (except part of the fourth, which is dark brown) and sometimes

the underside of the three basal segments black; head pale piceous: labrum piceous; suture narrowly piceous; anterior tibiæ and the bases of the other tibiæ dark brown.

Head with the vertex impunctate, frontal tubercles and interantennal carina small but well developed. Antennæ comparatively stout, extending beyond the middle of the elytra; first segment long and club-shaped, second and third equal or nearly so, but the former is much thicker than the latter, fourth and fifth equal, sixth and seventh somewhat shorter and equal to each other: the rest about equal and slightly thickened. *Prothorax* subquadrate, sides nearly straight, anterior angles oblique; surface entirely impunctate, shining. *Scutellum* triangular with apex broadly rounded, smooth, impunctate. *Elytra* nearly impunctate; under a strong lens minute punctures are visible, more so towards the base than towards the apex. *Underside*: first segments of posterior tarsi as long as the two following segments together.

Length, 3 mm.

NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

287. **Aphthona nigrilabris**, *Duvivier*.

Aphthona nigrilabris, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 426; Jacoby, Ann. Soc. Ent. Belg. xl, 1896, p. 255.

Body subovate. Shining yellow-brown; the five to eight segments of the antennæ from the apex, labrum, scutellum, breast and posterior femora pitch-black.

Head with vertex impunctate, with two oblique impressions in front above the eyes, meeting in the centre, frontal tubercles absent, interantennal carina well developed, labrum large. Antennæ slender, about half the length of the body; first segment long and club-shaped, second thickened, somewhat shorter than third, the latter about equal to the fourth: the following segments more or less nearly equal. *Prothorax* broader than long, sides straight, anterior lateral angles obliquely truncate, posterior rounded, basal margin feebly rounded; surface gently convex and entirely smooth, shining, and impunctate. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, somewhat broadened behind, seen under a high power to be extremely finely and sparsely punctate, and besides these punctures there are in some specimens round, closely placed, dark spots which simulate punctures. *Underside*: posterior tibiæ with spinules along the outer edge and ending in a terminal spine: but, despite this fact, the first segment of the posterior tarsi is not long enough for this species to be placed in the genus *Longitarsus*.

Length, $2\frac{2}{5}$–3 mm.

BENGAL: Konbir (*Père Cardon*). BIHAR: Pusa, "mining Dudhi leaves" (Andrewes Coll.). BOMBAY: Belgaum.

Type in the Brussels Museum. An example from Duvivier's collection, which may be regarded as a cotype, is in the British Museum.

288. **Aphthona hugeli**, *Jacoby*.

Aphthona hugeli, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 121.

Body oblong-ovate. Colour shining reddish-brown; the two basal segments of the antennæ brown, the third partly so, the rest black; mandibles piceous; scutellum black to piceous; elytra black; in some specimens the tarsi are more or less piceous or

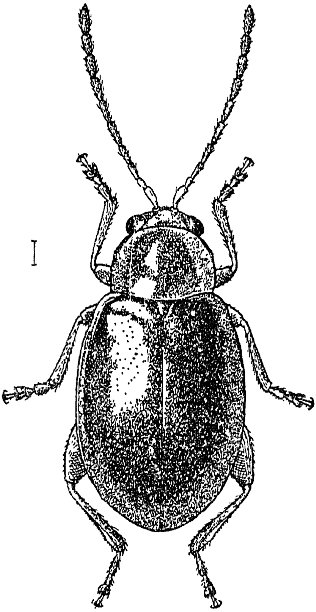

Fig. 125.—*Aphthona hugeli*, Jac.

fuscous, and in others the black of the elytra tends to become brown.

Head impunctate, frontal tubercles narrowly transverse, clypeus distinctly raised; penultimate segment of maxillary palpi rather thick. Antennæ extending a little beyond the middle of the elytra; basal segment elongate and club-shaped, second very short and thick, third and fourth equal, fifth somewhat longer, and the following segments slightly thickened. *Prothorax* somewhat broader than long, sides slightly rounded, with a narrow reflexed

margin, anterior angles oblique, so that another distinct angle is formed before the middle of the side; disc rather convex, seen under a high power to be very finely punctate, shining. *Scutellum* triangular with apex rounded, surface smooth and impunctate. *Elytra* slightly wider at base than prothorax, extremely minutely punctate; some of the punctures tend to form one or two irregular rows, and no punctures are visible towards the apex; surface very finely rugose. *Underside*: posterior tibiæ with a distinct terminal spine; first segment of posterior tarsi as long as the following segments together.

Length, $3\frac{1}{2}$ mm.

KASHMIR. BOMBAY: Satara, v. 1865 (*Hobson*).

Type in the British Museum. The example from Satara in the British Museum has the following remarks on the label: "feeds on *Pereskia aculeata*, Mill., a species of cactus, found in thousands; the cactus is so bitter that its milky juice blisters the hands."

289. **Aphthona lewisi**, *Jacoby*.

Aphthona lewisi, Jac., Proc. Zool. Soc. Lond. 1887, p. 85.

Body oblong, parallel-sided, the apex rounded. Colour shining brown: antennæ with the fifth to tenth segments black; elytra black or piceous; scutellum obscure brown.

Head impunctate, shining, frontal tubercles and interantennal carina not well developed. Antennæ two-thirds the length of the body: first segment much thickened, second almost as thick as first, third thinner than second and about equal in length thereto, fourth and fifth equal; the following segments much thickened. *Prothorax* twice as broad as long, sides straight, anterior angles obliquely truncate, so that a distinct angle is formed on each side before the middle; at each of the four lateral angles the setal pores are distinct; surface covered throughout with very fine but not very closely placed punctures. *Scutellum* triangular with the apex rounded, impunctate. *Elytra* hardly broader at base than prothorax, subcylindrical, shoulders prominently convex; surface more distinctly and more closely punctate than the prothorax, the punctures being strong and confused. *Underside*: legs short; posterior tibiæ without a terminal spine.

Length, about 2 mm.

CEYLON: Bogawantalawa (*G. Lewis*).

Type in the British Museum.

290. **Aphthona azurea**, *Jacoby*.

Aphthona azurea, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 256.

Body broadly ovate. Colour metallic bright blue; antennæ, tibiæ, tarsi and scutellum black; breast and abdomen black with a slight bluish tint; legs more distinctly metallic blue.

Head impunctate; eyes large; frontal elevations narrowly oblique, clypeus with an acutely raised central ridge. Antennæ robust, extending beyond the middle of the elytra; first segment long and club-shaped, third and fourth equal, the following segments thickened. *Prothorax* broader than long, sides nearly straight, narrowly margined, anterior angles oblique, so that a distinct angle is formed on each side before the middle, posterior margin broadly rounded but slightly produced at the middle; surface entirely impunctate. *Scutellum* broader than long. *Elytra* wider at base than prothorax, slightly widened at the middle, with narrow lateral margins; surface finely and confusedly punctate, the punctures being a mixture of finer and coarser, and the apex impunctate. *Underside*: first segment of posterior tarsi as long as the following segments together.

Length, $2\frac{1}{2}$ mm.; *breadth*, $1\frac{1}{2}$ mm.

BURMA: Prome.

Type in the British Museum.

291. **Aphthona indica**, *Jacoby*.

Aphthona indica, Jac., Mém. Soc. Ent. Belg. vii, 1900, p. 120.

Body oblong, parallel-sided. Colour metallic green or bluish above; scutellum black; underside piceous; antennæ and legs light brown, the posterior femora stained with piceous.

Head with vertex impunctate, frontal tubercles small but distinct. Antennæ extending nearly to the apex of the elytra; first segment long and club-shaped, second shorter than first, thicker than, but nearly equal in length to, the third: the following segments more elongate and about equal to each other. *Prothorax* somewhat broader than long, sides straight, slightly narrowed obliquely towards the base, anterior lateral angles oblique; surface obsoletely transversely depressed near the base, entirely impunctate. *Scutellum* small. *Elytra* wider at base than prothorax, distinctly punctate in closely approximated semi-regular rows, which are indistinct near the apex. *Underside*: first segment of posterior tarsi as long as the two following segments together.

Length, 2 mm.

CALCUTTA.

Type in the British Museum.

Evidently closely allied to *A. splendida*, Weise, from China, but the underside is not blue but pitchy-black, and the posterior femora are of the same colour; from *A. andrewesi*, Jac., and other somewhat similarly coloured species, the length of the antennæ and their entirely flavous colour, as well as the similar colour of the legs, will separate the insect described above.

292. **Aphthona andrewesi**, *Jacoby*.

Aphthona andrewesi, Jac., Ann. Soc. Ent. Belg. xl, 1896, p 256.

Colour of the upper side metallic dark blue, that of the underside bluish-black; labrum and scutellum black; antennæ with the four or five proximal segments brown, the basal segment stained with pitchy-blackish above, the four terminal segments blackish; legs more or less pitchy, tibiæ rather paler.

Head impunctate, with a few punctures near the inner margins of the eyes; frontal tubercles small, limited behind by an oblique channel at each side, carina short, tuberculiform. Antennæ extending beyond the middle of the elytra; the four terminal segments thickened, basal segment long and club-shaped, second thicker than, and nearly as long as, the third, the latter equal to the fourth, the following about equal. *Prothorax* broader than long, sides moderately rounded, anterior lateral angles oblique; surface impunctate. *Scutellum* triangular. *Elytra* broader at base than prothorax, finely and closely punctate; some of the punctures in the middle tend to form rows, which become rather obsolete at the apex. *Underside*: prosternum very narrow; first segment of posterior tarsi as long as the following segments together.

PUNJAB: Chamba.

Length, $1\frac{3}{4}$ mm.

Type in the British Museum.

293. **Aphthona proxima**, *Jacoby*.

Aphthona proxima, Jac., Proc. Zool. Soc. Lond. 1887, p. 85.

Body oblong. Colour obscure piceous to black; the five or six basal segments of the antennæ in some cases wholly brown, or the two basal segments may be darker; the third is bright brown, the fourth dark and the fifth again bright brown; the rest of the segments black.

Head impunctate, frontal tubercles distinctly raised, bases of antennæ very close together. Antennæ nearly half the length of the body (not as long as the body, as Jacoby states), rather robust, second segment nearly as stout as first but shorter, the three following segments more slender, of equal length, the rest slightly thicker. *Prothorax* broader than long, anterior angles oblique, with the pore of the anterior seta situated before the middle, sides rounded; humerus prominently convex; surface finely and rather closely punctate. *Elytra* with a shallow depression behind the base, somewhat closely and strongly punctate. *Underside*: legs short and robust; posterior tibiæ without a terminal spine.

Length, $2\frac{1}{4}$ mm.

CEYLON: Balangoda (*G. Lewis*); Kandy, vii. 1908 (*G. E. Bryant*).

Type in the British Museum.

294. Aphthona vicina, *Jacoby.*

Aphthona vicina, Jac., Proc. Zool. Soc. Lond. 1887, p. 86.

Body oblong. Colour shining black, the third and one or two following segments of the antennæ brown.

Head with vertex impunctate, with two deep, somewhat oblique, channels meeting in the middle; bases of antennæ very close, interantennal carina indistinguishable. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second shorter and much thicker than the third, which is slightly longer than the fourth, the following three equal, the last four more thickened. *Prothorax* broader than long, sides straight, anterior lateral angles truncate; surface granulate and sparsely punctate. *Scutellum* triangular with apex rounded and surface finely granulate. *Elytra* hardly broader at base than prothorax, humerus prominently convex; surface confusedly punctate, the punctures being more crowded round the scutellum and on the basal part. *Underside*: posterior tibiæ without a spine at the apex.

Length, $1\frac{1}{2}$ mm.

CEYLON: Dikoya (*G. Lewis*).

Type in the British Museum.

295. Aphthona ceylonensis, *Jacoby.*

Aphthona ceylonensis, Jac., Proc. Zool. Soc. Lond. 1887, p. 85.

Body ovate. Colour obscure piceous; antennæ, apices of tibiæ, and tarsi dark brown; the four or five terminal segments of the antennæ more or less stained with fuscous.

Head impunctate, frontal tubercles not well developed, area all round the bases of the antennæ excavated. Antennæ nearly as long as the body; first segment much thickened, second equally thickened but smaller, third and the two following segments nearly equal to each other, smaller and thinner than second, sixth neither much thickened nor as thin as fifth, the following segments thicker. *Prothorax* much broader than long, sides slightly rounded, anterior lateral angles oblique; surface not very closely and finely punctate, the interstices extremely finely granulate. *Scutellum* triangular, broader than long, with the surface granulate. *Elytra* distinctly widened at the middle, rather convex, the shoulders rounded; closely and very strongly punctate, the interstices somewhat rugose. *Underside*: first segment of posterior tarsi as long as the two following together; posterior tibiæ with a minute terminal spine.

Length, $1\frac{1}{4}$ mm.

CEYLON: Horton Plains; Dikoya, 3800–4200 ft., 21. i–7. ii. 1882 (*G. Lewis*).

Type in the British Museum.

The following three species of Motschulsky are included here, as they were described from Ceylon and India, and a translation of the original remarks under each species is given. They are not incorporated in the key on p. 367 :—

Aphthona nigrita, *Motschulsky.*

Aphthona nigrita, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 418.

In form and colour resembles *A. euphorbiæ* [Europe], but somewhat smaller. Oblong-ovate, convex, shining, almost glabrous, black, base of antennæ and legs pale, posterior femora black.

Length, 1·9 mm.; *breadth*, $1\frac{1}{4}$ mm. [$\frac{3}{4}$ and $\frac{1}{2}$ lin. respectively].

CEYLON: from the mountains of Nuwara Eliya.

[The British Museum has an example doubtfully determined as this species.]

Aphthona cyanipennis, *Motschulsky.*

Aphthona cyanipennis, Motsch., *t. c.* p. 419.

Following the remarks on the preceding species, this species is proposed in the following words:—

"On the Continent of India there exists one more species which in form, shape and colour resembles *A. cœrulea*, Payk. [Europe], but which has the head and prothorax reddish-brown. I have named this *A. cyanipennis*."

Aphthona viridifusca, *Motschulsky.*

Aphthona viridifusca, Motsch., Etud. Ent. vii, 1858, p. 106.

In size and form it resembles *H. cœrulea*, Payk.* [Europe], but the colour of the upper side is more blackish. The femora are black in the middle, particularly the hind pair; the tibiæ and tarsi and the greater part of the antennæ brown: the first segment of the latter, the mouth-parts, knees and bases of the tarsi testaceous. The pronotum is more rectangular, the anterior angles more prominent, and the punctuation finer. The elytra are more parallel in front, the humeral angles more prominent, the punctuation coarser, much less close, and almost arranged in striæ.

CEYLON (*Nietner*).

[The British Museum contains an example determined as this species.]

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* Motschulsky wrote thus, "*H. cœrulea*, Payk.", doubtless meaning *A.* [=*Aphthona*] *cœrulea*, Payk. *H. cœrulea* would properly mean *Haltica cœrulea*, which is Olivier's, not Paykull's, species.

Genus PHYLLOTRETA, *Stephens.*

Phyllotreta, Stephens, Manual Brit. Col. 1839, p. 291; Foudras, Mulsant's Col. France, Altisides, 1860, p. 230; Chapuis, Gen. Col. xi, 1875, p. 73; Fowler, Col. Brit. Is. iv, 1890, p. 361.

GENOTYPE, *Chrysomela nemorum*, L. (Syst. Nat. ed. x. 1758, p. 373; Europe).

Body oblong, almost parallel-sided. *Head* as broad as the prothorax; eyes small; frontal tubercles not very strongly developed, interantennal carina short. Antennæ extending to the middle of the elytra or a little distance beyond; first segment club-shaped, second and third small; either the fourth or both the fourth and fifth somtimes much enlarged in the male. *Prothorax* broader than long, sometimes slightly narrowed in front, front and hind borders almost straight, sides slightly rounded, front and hind angles rounded, or the posterior angles sometimes right angles and the anterior somewhat thickened; surface gently convex, without any impressions. *Scutellum* small, sometimes not outwardly visible. *Elytra* hardly broader at base than prothorax, oblong-ovate, more or less convex, generally confusedly punctate; sometimes the punctures tend to form rows. *Underside*: prosternum very narrow between the coxæ; front and coxal cavities open behind; posterior femora strongly incrassate; posterior tibiæ slender, not channelled on the outer side and with a small spine at the apex; posterior tarsi somewhat shorter than the corresponding tibia, the first segment equal in length to the following three together; claws simple.

Range. World-wide.

This genus contains many serious pests of cultivated crops.

Key to the Species.

1. Elytra unicolorous	2.
Elytra brown with a reddish-piceous longitudinal stripe	*L. birmanica*, Harold, p. 377.
2. Colour black with a slight bronzy tint; fourth antennal segment in the male enormously expanded	*P. oncera*, sp. n., p. 378.
Colour different	3.
3. Colour metallic bronze with greenish or bluish reflections; posterior part of the surface of the elytra without ribs.	*P. chotanica*, Duviv., p. 379.
Colour metallic green with a bluish tint; posterior part of the surface of the elytra with short longitudinal ribs ..	*P. downesi*, Baly, p. 380.

296. Phyllotreta birmanica, *Harold.*

Phyllotreta birmanica, Har., Mitt. Münch. Ent. Ver. i, 1877, p. 109.

Body somewhat convex, shining. Head and prothorax red-brown; elytra brown, the suture in front and behind narrowly, and a longitudinal stripe extending from the humeral callus and

confluent at the apex with the suture, reddish-piceous; antennæ piceous with the three basal segments entirely, and the fourth partly, reddish-brown; legs entirely red-brown; underside piceous.

Pronotum finely punctate. Elytra very densely punctate, the punctures arranged to some extent in longitudinal series. Fifth segment of the antennæ in the male long and somewhat thickened.

Length, 2 mm.

BURMA.

Type apparently unknown.

297. Phyllotreta oncera, sp. nov.

Body oblong, parallel-sided. Colour black, with a slight bronzy tint; the points of articulation of the segments of the legs and the three basal segments of the antennæ brown.

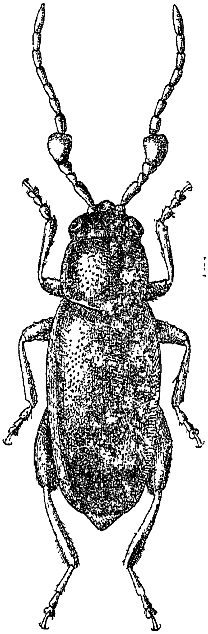

Fig. 126.—*Phyllotreta oncera*. Maulik.

Head with the vertex impunctate, but the surface finely reticulate; frontal tubercles completely absent, interantennal carina broad; eyes not prominent. Antennæ one millimetre shorter than the length of the body; first segment long, second very small, almost globular, third broadened at the apex, fourth enormously expanded and flattened in the male; the following segments more or less nearly equal, and not very elongate.

Prothorax almost quadrate, sides gently rounded, posterior lateral angles widely rounded, anterior almost right angles; surface closely punctate, the punctures being as strong as those on the elytra, and under a high power the whole surface appears to be finely reticulate. *Scutellum* normally invisible. *Elytra* very slightly broader at base than prothorax, closely punctate; seen under a high power the whole surface is finely reticulate. *Pygidium* exposed. *Underside* sparsely covered with fine hairs; posterior tibiæ broader at the apex than at the base, the outer side flattened, each lateral edge of this flattened surface set with fine spinules and the apex furnished with a spine; first segment of the posterior tarsi equal in length to the following two together, claw-segment long.

Length, $2\frac{1}{2}$ mm.

United Provinces: Almora, Kumaon (*H. G. Champion*).

Type in the British Museum. Described from one male example.

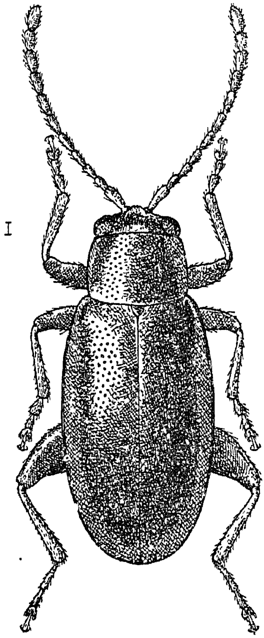

Fig. 127.—*Phyllotreta chotanica*, Duvivier

298. **Phyllotreta chotanica**, *Duvivier*.

Phyllotreta chotanica, Duviv., Ann. Soc. Ent. Belg. xxxvi, 1892, p. 426; Jacoby, Ann. Soc. Ent. Belg. xl, 1896, p. 258.

Body small, narrow, oblong. Colour of the upper side metallic

bronze with greenish or bluish reflections; underside and antennæ black; knees and tarsi brownish.

Head with front impunctate and bearing short whitish hairs, interantennal carina sharply elevated, vertex shining, impunctate. Antennæ extending a little beyond the middle of the elytra; first segment long and thickened, second much shorter than first, third slightly longer than second, fourth slightly longer than third, fifth about equal to fourth, sixth somewhat shorter; the following segments somewhat thickened. *Prothorax* broader than long, very slightly narrowed in front, sides very feebly rounded; surface, seen under a high power, finely granulose and closely covered with punctures. *Scutellum* small, triangular, with apex rounded and surface shining and impunctate. *Elytra* hardly broader at base than prothorax, separately rounded at their apices, closely covered with punctures similar to those of the pronotum.

Length, 2 mm.; *breadth*, ¾ mm.

DARJEELING: Kurseong (*P. Braet*; type-locality).

Type in the Brussels Museum.

299. **Phyllotreta downesi**, *Baly*.

Phyllotreta downesi, Baly, Trans. Ent. Soc. Lond. 1877, p. 300.

Body elongate. Colour metallic green with a bluish tint; antennæ black, the three basal segments piceous, suffused with bronzy-black; underside black; posterior femora metallic green; scutellum shining black.

Head with a few minute scattered punctures, frontal tubercles quadrangular, contiguous, the surface behind them faintly rugulose, the interantennal carina straight, sharp. Antennæ more than two-thirds the length of the body; first segment long and club-shaped; according to Baly the second and third segments are short and equal, but I have no means of verifying this statement, because the type-specimen lacks all the segments except the first. *Prothorax* broader than long, basal margin almost straight with a slight median lobe, sides nearly parallel, rounded and converging to the front margin, anterior lateral angles thickened, obliquely truncate, the posterior pair right angles; surface granulose, rather closely covered with shallow round punctures. *Scutellum* triangular, with apex rounded and with surface smooth and impunctate. *Elytra* narrowly ovate, hardly broader at base than prothorax, more deeply punctate than the pronotum; the punctures are close together and have some arrangement in longitudinal rows; interspaces granulose; behind the middle there are some distinctly raised ribs. *Underside* smooth, shining, nearly impunctate; posterior tibiæ ending in a spine.

Length, 3½ mm.

BOMBAY (*Dr. E. Downes*). TENASSERIM: Tavoy (*Doherty*); there are four specimens referable to this species in the British Museum from this locality; in these the second and third antennal

segments are short but the latter is slightly longer than the second, the fourth is much longer than the third, the rest about equal; also in some of these examples the postmedian elytral ribs are not prominent.

Type in the British Museum.

Genus **MORYLUS**, *Jacoby*.

Morylus, Jac., Proc. Zool. Soc. Lond. 1887, p. 99.

GENOTYPE, *Morylus fulvipennis*, Jac.

Body ovate, convex. *Head*: frontal tubercles reduced to two ridges extending to the interantennal space and enclosing a deep furrow. Eyes large, entire. Penultimate segment of the labial palpi thickened, the terminal segment being small, conical, and pointed. Antennæ long and more or less stout. *Prothorax* broader than long, anterior angles obliquely and slightly expanded. *Scutellum* broader than long with the surface finely shagreened. *Elytra* confusedly punctate. *Underside*: epipleura of the elytra narrowly extended up to the apex. Prosternum broad; anterior coxal cavities open. Mesosternum much broader than long. Posterior tibiæ deeply channelled on their upper side; posterior femora strongly incrassate; first segment of the posterior tarsi almost as long as the two following segments together; claws appendiculate.

Range. Ceylon.

300. **Morylus fulvipennis**, *Jacoby*.

Morylus fulvipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 99.

Body ovate, convex. Colour of elytra dark shining brown; underside pitch-brown; head, prothorax and legs black with brownish tinge; terminal segments of antennæ black.

Head: vertex convex, impunctate, delimited from the front by a deep transverse channel; between the antennæ there is a deep longitudinal furrow, bounded on each side by a ridge which bends round, meeting the eye and enclosing a large concave area round the root of the antenna; these ridges can be said to be homologous to the frontal tubercles; the concave area between the eye and the root of the antenna extends forwards to the base of the mouth-parts. Antennæ somewhat robust and a little shorter than the length of the body; first segment long, club-shaped, second thickened but shorter than the third, which is slender and almost equal to the fourth, the fifth is also of about the same length as the preceding segment but stouter; from the sixth onwards the segments become thicker, opaque, and sparsely covered with bristly hairs. *Prothorax* broader than long, basal margin widely arcuate, sides straight; each of the posterior angles possesses a seta-bearing pore, and at each anterior angle the margin is slightly expanded, having an oblique straight edge,

and the angle itself possessing a seta-bearing pore; surface convex from side to side, smooth and impunctate. *Scutellum* broader than long, triangular, with apex broadly rounded and surface finely shagreened. *Elytra* hardly broader at base than prothorax, but becoming broader immediately behind; humerus raised,

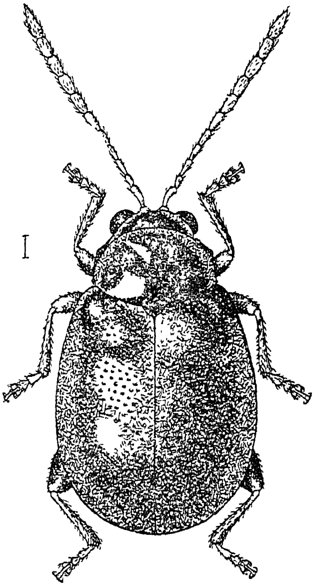

Fig. 128.—*Moryllus fulvipennis*, Jac.

convex and impunctate; the entire surface is closely, irregularly and more or less deeply punctate. *Underside*: abdominal sternites sparsely covered with long silvery hairs, the other parts smooth and glabrous.

Length, 3 mm.; *length of antenna*, 2½ mm.

CEYLON (*G. Lewis*).

Type in the British Museum.

Genus SEBÆTHE, *Baly*.

Sebæthe, Baly, Ann. & Mag. Nat. Hist. (3) xiv, 1864, p. 438; Chapuis, Gen. Col. xi, 1875, p. 79.

GENOTYPE, *Haltica badia*, Erichson (Philippine Is.). Baly founded the genus on this species.

Body oblong or oblong-ovate, often broad, moderately convex. Colour metallic or brown, or the upper side of the elytra has a pattern. *Head* as broad as the prothorax, with vertex more or

less convex and either punctate or impunctate; vertex often separated from the front by an impressed line in the interocular space, this line forming the posterior boundary of the frontal tubercles; the latter always present but not much elevated, contiguous, separated by an impressed longitudinal line along the middle; interantennal carina always well developed; mouth-parts more or less exserted. *Antennæ* extending to a point between the middle of the elytra and the apex but never beyond; first segment long and club-shaped, second always smaller than first and often than third; the relative lengths of the third, fourth, fifth and following segments vary; except the two or three basal segments all the others are always covered with fine hairs, a few of which are sometimes longer than the rest: the last segment is generally pointed. *Prothorax* always broader than long, somewhat narrowed in front, but the relative length and breadth vary, so that sometimes the prothorax appears more nearly quadrate than transverse; sides generally rounded, with margins somewhat explanate and reflexed; as a rule each of the anterior and posterior lateral angles bears a fine seta, and very often the former are thickened and sometimes slightly produced: anterior and posterior margins usually forming wide curves; surface either punctate or impunctate; sometimes it is very finely and sparsely punctate, to see which a high power must be used. *Scutellum* triangular, often comparatively large, with surface smooth and impunctate. *Elytra* sometimes distinctly though slightly broader at the base than the prothorax, often hardly broader, but immediately behind they are gradually broadened; sometimes they are nearly parallel-sided with the apex broadly rounded: lateral margins generally slightly explanate and reflexed; surface always confusedly and finely punctate, the punctures varying in their degree of closeness, and often stronger than those of the pronotum, when the latter is punctate; the apical edges and to a certain extent the lateral edges of the elytra bear sparsely distributed fine setiform hairs. *Underside*: anterior coxal cavities open behind; prosternum oblong-elongate with sides sinuate. *Legs* not very long, moderately robust; tibiæ channelled on the outer side; posterior femora thickened and channelled on the under-side for the reception of the posterior tibiæ, which have a spine at their apex; first segment of posterior tarsi longer than the corresponding segment of the front and middle legs, and often equal to the two following segments of the hind tarsus together; claw-segment projecting beyond the bilobed segment; claws appendiculate. In the male the front and middle tarsi are sometimes expanded.

In some cases there is a superficial resemblance between species of *Sebæthe* and those of *Hyphasoma*, but the two genera are differentiated by the latter having the first segment of the posterior tarsi inflated.

Range. India, Malay Archipelago, Philippine Is., New Guinea, Indo-China, China and Japan.

Key to the Species.

1. Upper side, at least the elytra, metallic, the colour being blue, green or purple.	2.
Upper side not metallic	7.
2. Pronotum and elytra concolorous	3.
Pronotum and elytra not concolorous ..	5.
3. Body entirely shining dark blue; antennæ black	*S. recticollis*, Jac., p. 386.
Body not entirely shining dark blue	4.
4. Colour above bright metallic blue; part of the head and the three basal segments of the antennæ brown, underside blackish (length 5½ mm., breadth 3½ mm.)	*S. nila*, sp. n., p. 386.
Colour above deep brown with a purplish gloss	*S. pyrobapta*, sp. n., p. 387.
5. Elytra dark metallic green, with lateral margins and the apex yellow-brown ..	*S. pallidicincta*, Jac., [p. 388.
Elytra deep violet or purple or bronzy-violet	6.
6. Underside blackish; antennæ somewhat stout, with the three basal segments brown and the eight apical segments blackish; insect larger (5½–6 mm. long).	*S. iobaphes*, sp. n., p. 388.
Underside and the whole of the antennæ brown, the latter slender; insect smaller (4¾ mm. long)....................	*S. ioscopa*, sp. n., p. 390.
7. Head and pronotum pitch-brown to black, elytra yellow-brown	*S. troglodytes*, Ol., p. 390.
No such combination of colours........	8.
8. Disc of elytra entirely black, with the margins and part, at least, of the suture, yellow-brown	*S. perata*, sp. n., p. 391.
No such combination of colours	9.
9. Disc of elytra black, intersected by an oblique brownish-yellow band which is a continuation of the broad brownish-yellow stripe on the posterior half of the suture; margins all round broadly brownish-yellow	*S. fimbriata*, sp. n., p. 392.
No such pattern on the elytra........ ..	10.
10. Elytra black or brownish-black all round, with a pale ovate or a transverse patch on each	*S. lusca*, Fabr., p. 393.
Elytra with no such pattern	11.
11. Each elytron black with two pale patches, the extent of which varies considerably	*S. quadrimaculata*, Jac., [p. 394.
Elytra with no such pattern; head, pronotum and elytra entirely brown	12.
12. Pronotum entirely impunctate	13.
Pronotum punctate, with at least a few punctures	15.
13. Body parallel-sided; pronotum with ill-defined depressions	*S. elongata*, Jac., p. 395.

Body not parallel-sided; pronotum without ill-defined depressions .... 14.

14. Longer insects (5 mm.); colour pale brown .... *S. immaculata*, Jac., [p. 396.

Smaller insects (4 mm.), more ovate; colour obscure brown .... *S. intermedia*, Jac., p. 396.

15. Suture with a piceous stripe, narrowed behind and not extending to the apex.. *S. suturalis*, Jac., p. 397.

Suture without any such stripe .... 16.

16. Pronotum with a mixture of finer and coarser punctures, the former closer, the latter sparse .... *S. ceylonensis*, Jac., p. 397.

Pronotum with no such arrangement of punctures .... 17.

17. Body not less than 5 mm. in length, generally 6 mm.,.................. 18.

Body always less than 5 mm. in length. . 21.

18. Upper side brownish-yellow .... 19.

Upper side darker brown or fawn-coloured .... 20.

19. Colour richer; elytral punctures stronger; elytra more nearly parallel-sided; antennæ entirely brown .... *S. lychnites*, sp. n., p. 398.

Colour paler; elytral punctures feeble; elytra more widened behind; antennæ black, except the two basal segments, which are brown .... *S. montivaga*, sp. n., [p. 399.

20. Colour fawn-brown; antennæ more slender, piceous; the third segment distinctly shorter than the fourth ...... *S. andamanica*, sp. n., [p. 399.

Colour clear brown; basal segments brown, the rest black; the third segment only slightly shorter than the fourth .. *S. brevicollis*, Jac., p. 400.

21. Antennæ entirely brown, elytra red-brown .... *S. cænotes*, sp. n., p. 401.

Antennæ not entirely brown, elytra not red-brown .... 22.

22. Elytra strongly punctate.............. 23.

Elytra extremely finely punctate ...... 24.

23. Body parallel-sided; pronotum less than twice as broad as long .... *S. neelys*, sp. n., p. 401.

Body with sides more rounded; pronotum more transverse, about twice as broad as long..................... *S. patkaia*, sp. n., p. 402.

24. Body oblong, parallel-sided; pale brown-yellow; antennæ hardly reaching the middle of the elytra; apices of posterior femora fuscous above................ *S. pingala*, sp. n., p. 402.

Body with the sides rounded, dark brown; antennæ reaching the middle of the elytra; apices of posterior femora not fuscous above .... 25.

25. Smaller insects ($3\frac{3}{4}$ mm. long), reddish-brown; tarsi always black; first segment of front and middle tarsi in the male dilated .... *S. nigritarsis*, Jac., p. 403.

Larger insects ($4\frac{3}{4}$ mm. long), brown without the reddish tint; tarsi not black, they may be somewhat piceous but are generally brown; first segment of front and middle tarsi not dilated in the male .... *S. nigricornis*, Baly, [p. 403.

301. Sebæthe recticollis, *Jacoby*.

Sebæthe recticollis, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 924.

Oblong-ovate. Shining metallic dark blue; antennæ black; labrum piceous.

Head with vertex impunctate and frontal elevations not strongly developed; the clypeus has the shape of a strongly elevated triangular ridge; labrum with a few deep punctures; maxillary palpi with penultimate segment strongly incrassate. Antennæ hardly extending to the middle of the elytra, opaque, pubescent, the first segment less so, long and somewhat thickened at the apex, second small, third somewhat longer than second, fourth about equal to third, the rest about equal to each other. *Prothorax* scarcely twice as broad as long, somewhat narrowed in front, sides narrowly margined, anterior lateral angles oblique, expanded and with a seta-bearing pore, posterior acute and each with a fine seta; surface gently convex, finely and not very closely punctate. *Scutellum* triangular with apex rounded; smooth, shining, impunctate. *Elytra* broader at base than prothorax, finely and not closely punctate, the punctures being similar to those of th pronotum. *Underside*: posterior tibiæ channelled, with a spine at the apex; first segment of the posterior tarsi equal in length to the two following together.

Length, $3\frac{1}{2}$ mm.

BURMA: Karen Mts., Asciuii-Ghecù, 1400–1500 metres (= ca. 4590–4920 ft.), iii–iv. 1888 (*Fea*).

Type in the Genoa Museum.

There are two examples in the British Museum bearing Fea's printed labels with the above note of locality, and one of these is marked in such a way that I think it should be regarded as a cotype.

302. Sebæthe nila *, sp. nov.

Body oblong-ovate. Colour above bright metallic blue (pronotum not so deep blue as elytra); underside blackish; head (except the vertex, which shares the colour of the prothorax), the three basal segments of the antennæ, the legs (except the tarsi, which are blackish), and the posterior femora (except the apex, which is blackish), brown; the eight apical segments of the antennæ blackish; scutellum black.

* Sanskrit, "blue."

Head with vertex closely and strongly punctate, the punctures more crowded towards the sides, leaving the middle comparatively free, and with a depression in the centre; frontal tubercles obliquely placed, impunctate, interantennal carina sharp. Antennæ slender, extending a little distance beyond the middle of the elytra; first segment long and club-shaped, second very short, third about twice as long as second, fourth longer than third, fifth, sixth and seventh equal; the following four segments somewhat shorter than each of the immediately preceding ones, and equal to each other. *Prothorax* about twice as broad as long, somewhat narrowed in front, front margin widely emarginate, anterior lateral angles rounded, sides gently rounded, lateral margins somewhat explanate and reflexed; surface extremely finely and closely punctate, and on the background of these fine punctures there are scattered coarser punctures. *Scutellum* large, triangular, with surface impunctate. *Elytra* somewhat broader at base than prothorax; humerus prominent, convex; lateral margins slightly explanate; punctuation similar to that of the pronotum, but the coarser punctures are closer and somewhat stronger. *Underside*: sides of the breast, abdominal sternites, and legs covered with fine hairs.

Length, $5\frac{1}{2}$ mm.; *breadth*, $3\frac{1}{2}$ mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum. Described from five examples.

303. **Sebæthe pyrobapta**, sp. nov.

Body oblong-ovate. Colour above deep red-brown with a purplish-bronzy sheen; underside comparatively lighter brown, with the apex of the posterior femora blackish; antennæ, except the three basal segments, blackish.

Head strongly and closely punctate, with a transverse impressed line across the interocular space, in the middle of which is a shallow depression; frontal tubercles obliquely placed, interantennal carina sharp. Antennæ long, almost extending to the apex of the elytra; first segment long and club-shaped, second much shorter, third almost twice as long as second, fourth slightly longer than third; the following segments more or less nearly equal to each other. *Prothorax* about twice as broad as long, somewhat narrowed in front, sides very gently rounded, lateral margins expanded and reflexed, anterior lateral angles acute; surface very finely and rather closely punctate, the punctures being a mixture of finer and comparatively coarser. *Scutellum* triangular, with the surface impunctate. *Elytra* hardly broader at base than prothorax, anterior lateral angles rounded, humerus prominent and convex, lateral margins slightly explanate; surface closely and confusedly punctate, the punctures being much stronger than those of the pronotum, while besides this the whole surface has a fine rugulosity. *Underside* thinly covered with fine hairs.

Length, 4 mm.
BURMA: Ruby Mines (*Doherty*).
Type in the British Museum. Described from one example.

304. Sebæthe pallidicincta, *Jacoby*.

Sebæthe pallidicincta, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 390.

Colour yellow-brown; antennæ black with the basal segment entirely, and the two following segments at the base, brown; pronotum with five obscure small rounded fuscous spots disposed as follows: four in a curved line across the middle, and the fifth (which is hardly recognisable) central in position; elytra dark metallic green, the lateral and apical margins yellow-brown, the latter broadly so; sides of the breast and apices of the posterior femora, as well as the knees and the tarsi, black; scutellum black.

Head impunctate, frontal tubercles triangular. Antennæ slender, extending to nearly the middle of the elytra: third segment one-half longer than second and hardly shorter than fourth; the following segments about equal. *Prothorax* about two and a half times longer than broad, slightly narrowed in front, sides with a narrow reflexed margin; surface sparsely and finely punctate. *Scutellum* broad, triangular, with apex rounded and surface impunctate. *Elytra* broader at base than prothorax, very finely and closely punctate.

Length, $5\frac{1}{4}$ mm.; *breadth*, $3\frac{1}{2}$ mm.
NILGIRI HILLS (Andrewes Coll.). TRAVANCORE (see below).
Type in the British Museum.

Closely allied to *S. flavolimbata*, Jac., but distinguished by having the segments of the antennæ of different relative lengths, the prothorax shorter, more transverse and spotted, and the apices of the posterior femora black.

There is one example in the British Museum from Travancore Tea Company (*G. S. Imray*) which I consider to be a variety of this species; it has the obsolescent spots on the pronotum not visible, the margins of the elytra dark metallic green (the apex being brown as in the typical form) and the yellow-brown colour darker.

305. Sebæthe iobaphes, sp. nov.

Body oblong-ovate. Colour of elytra bronzy-violet or pure violet; head, prothorax, front and middle legs (except the tarsi), pro- and meso-sterna and the three basal segments of the antennæ, brown; the eight apical segments of the antennæ and the underside blackish. The coloration varies; the brown of the legs is often mixed with blackish, more so in some parts than in others; on the pronotum there may be ill-defined blackish patches; in one example (from S. Shan States, 4000 ft.) the brown is

replaced by bright yellow, while between the latter colour and the brown there are various shades of lighter brown; and the apical sternite of the abdomen is sometimes brownish.

Head broad, distinctly punctate; frontal tubercles accentuated by a deep depression in the centre, interantennal carina well developed, broad. Antennæ rather stout, long, extending to a little distance beyond the middle of the elytra; first segment long, club-shaped, second much shorter, third about twice as long as second, fourth slightly longer than third, fifth about equal

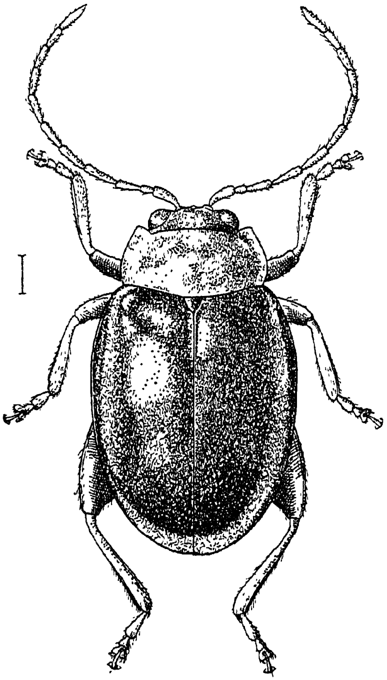

Fig. 129.—*Sebæthe iolaphes*, Maulik.

to fourth; the following segments about equal to each other and very slightly thicker. *Prothorax* about twice as broad as long, somewhat narrowed in front, lateral margins expanded, reflexed and rounded, anterior lateral angles thickened; surface finely and sparsely punctate. *Scutellum* large, triangular, with surface impunctate. *Elytra* hardly broader at base than prothorax, anterior lateral angles well rounded, humerus convex, lateral margins slightly expanded and reflexed; surface confusedly, closely and distinctly punctate. *Underside* sparsely covered with fine hairs.

Length, $5\frac{1}{2}$–6 mm.

BURMA: Ruby Mines (*Doherty*). ASSAM (*W. F. Badgley*). S. SHAN STATES: Kolaw, 4000 ft., iv. 1916 (*F. M. Mackwood*; this specimen is 6 mm. long).

Type in the British Museum. Described from six examples.

306. Sebæthe ioscopa, sp. nov.

In form and superficial coloration strongly resembles *S. iobaphes*, but differs in being smaller and in having the whole of the antennæ and all the legs (except the apices of the posterior femora, which are blackish) brown, and the breast and abdominal sternites blackish much mixed with brown. The antennæ in this species are more slender, and appear somewhat longer, than in *S. iobaphes*, though the relative lengths of the segments remain the same. Head punctate, central depression more elongate, interantennal carina sharper. The punctuation of the pronotum and elytra, and the other characters, are as in *S. iobaphes*.

Length, $4\frac{3}{4}$ mm.

BURMA: Momeik [Momeit] (*Doherty*).

Type in the British Museum. Described from one example.

307. Sebæthe troglodytes, *Olivier*.

Altica troglodytes, Ol., Entomologie. vi, 1808, p. 700, pl. 3, f. 58.
Sebæthe fulvipennis, Baly, Trans. Ent. Soc. Lond. 1877, p. 164.
Sebæthe pallidipennis, Baly, Cist. Ent. ii, 1879, p. 442; Jacoby, Ann. Mus. Civ. Genova, xxvii, 1889, p. 203.

Body ovate. Colour pitch-brown to black, with the elytra yellow-brown to darker brown. Sometimes the two or three basal segments of the antennæ and the reflexed lateral margins of the pronotum are brownish. The scutellum shares the colour of the pronotum.

Head with vertex impunctate; frontal tubercles with an impressed longitudinal line between them and separated from the vertex by a transverse impressed line in the interocular space; interantennal carina well developed. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth longer than third, from the fourth to the seventh the segments are somewhat thickened, fourth and fifth equal to each other in length, sixth and seventh also equal to each other; from the eighth to the eleventh the segments are somewhat thinner, and are about equal to each other in length. *Prothorax* broader than long, sides rounded with margins somewhat explanate and reflexed, anterior lateral angles thickened and each of the four angles bearing a fine seta; surface smooth, shining, extremely finely and sparsely punctate. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax;

surface confusedly and finely punctate, the punctures not very close to each other, and stronger than those on the pronotum. *Underside* covered with fine hairs.

Length, 4–4½ mm.

BENGAL: type-locality of *A. troglodytes*; also Calcutta. BIHAR: Chapra. ASSAM: Patkai Mts. (*Doherty*); Sadiya (*Doherty*); Assam Valley (*Doherty*); type-locality of *S. pallidipennis* (*A. W. Chennell*). BURMA: Ruby Mines (*Doherty*); Momeik [Momeit] (*Doherty*); type-locality of *S. fulvipennis*. UNITED PROVINCES: Dehra Dun, 14.v.1913; Haldwani District, Kumaon, v.1923 (*H. G. Champion*); Kosi R., 3000 ft., Ranikhet, iii.1920 (*H. G. Champion*); Kumaon, West Bhatkot, 4000 ft., v.1920 (*H. G. Champion*). CHINA.

Type of *Altica troglodytes* (Bengal, Coll. Macé) in the Muséum d'Histoire Naturelle, Paris; those of *S. pallidipennis* and *S. fulvipennis* in the British Museum.

Having carefully examined the types of *S. pallidipennis* and *S. fulvipennis*, I am of opinion that they are the same species. Probably Baly was justified in keeping them separate, not having many specimens before him. I believe that this species has a wide distribution, but the variation is not, apparently, correspondingly great.

308. **Sebæthe perata**, sp. nov.

Body broadly ovate, shining. Colour of the head, the three basal segments of the antennæ, the pronotum, a broad border all round the elytral margins, and the suture, dark brown to light yellow; the eight apical segments of the antennæ and the elytra black, but in one example the lighter colour of the suture extends from the apex forwards to behind the middle; in one case, also, the central part of the pronotum is fuscous; scutellum sharing the colour of the pronotum; underside fuscous or blackish; legs sometimes piceous, with the points of articulation and the tarsi darker in one example, but in the other the legs are lighter; epipleura of the elytra always lighter than the rest of the underside.

Head with vertex impunctate, frontal tubercles with a fine longitudinal impression between them and separated from the vertex by a transverse impression in the interocular space, interantennal carina sharply raised. *Antennæ* slender; first segment long and club-shaped, second short, third longer than second, fourth slightly longer than third. *Prothorax* much broader than long, sides rounded, with their margins somewhat explanate and reflexed, anterior lateral angles somewhat produced and thickened; surface very sparsely and finely punctate. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax; surface more or less closely, finely and confusedly punctate, the punctures being

stronger than those of the pronotum. *Underside* covered with fine hairs.

In the male the first segment of the front and middle tarsi is somewhat enlarged.

Length, $4\frac{1}{2}$ mm.

SOUTH INDIA.

Type in the British Museum. Described from two examples, one of which, with "India" only on the label, was collected by Bowring. The male example has the brown parts of the body lighter, and the suture light coloured over about half its length. In the other example the pronotum has a fuscous patch and does not look so transverse as in the male.

309. **Sebæthe fimbriata**, sp. nov.

Body broadly ovate, shining. Colour of head and one or two basal segments of the antennæ fuscous-brown, the head with an ill-defined smoky patch on the vertex; pronotum brownish-yellow, with a large ill-defined smoky patch on the disc; scutellum brownish-yellow with the base piceous; elytra with the disc black and the margins all round broadly brownish-yellow; the posterior half of the suture is equally brownish-yellow, and this colour is continued on each elytron obliquely as a band which, broadly bifurcating on the post-humeral part of the surface, reaches the basal and the lateral margins, the branch reaching the lateral margin interrupting the black colour and isolating an oblong black patch on the humerus; in such cases there are, however, traces of blackish-brown colour indicating that the isolated humeral black patch might have been continuous with the black colour of the disc; the edges of the black parts, where they meet the brownish-yellow, are pitch-brown; general colour of underside yellow-brown, the tibiæ, tarsi, apices of the posterior femora and sides of the breast smoky black.

Head with vertex impunctate, frontal tubercles with a fine longitudinal impression between them and separated from the vertex by a transversely impressed line in the interocular space, which is somewhat depressed; interantennal carina sharply raised. Antennæ with first segment long and club-shaped, second small, third much longer than second, fourth somewhat longer than third. *Prothorax* much longer than broad, sides rounded with their margins somewhat explanate and reflexed, anterior lateral angles somewhat produced and thickened, each of the four angles bearing the usual fine seta; surface, seen under a high power, more or less closely and finely punctate. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* hardly broader at base than prothorax; the whole surface confusedly, and more or less closely, punctate, the punctures being larger than those on the pronotum.

Length, 5¼ mm.
Nilgiri Hills (*G. F. Hampson*).
Type in the British Museum. Described from one example.

310. **Sebæthe lusca**, *Fabricius*.

Crioceris lusca, Fabr., Syst. Eleuth. i, 1801, p. 456.
Sphæroderma lusca, Gemminger and Harold, Cat. Coleopt. xii, 1876, p. 3548.
Sebæthe lusca, Duvivier, Cat. Chrys. Haltic. Galeruc., Mém. Soc. Roy. Sci. Liège, (2) xi, 1885, p. 31.
Var. *variabilis*, Jacoby, Ann. Mus. Civ. Genova, xxii, 1885, p. 48.
Var. *bipustulata*, Jacoby, Novitates Zool. i, 1894, p. 291.

Body oblong-ovate. Colour of prothorax generally brown, but it may be pitch-brown to black; the three basal segments of the antennæ brown but similarly varying to black, the eight apical segments always blackish; the central part of each elytron is always pale yellowish, while the remaining portions are dark pitch-brown to black, generally the latter; underside varying from fuscous to black; even when it is fuscous some parts, such as a large area on the posterior femora, are blackish; scutellum generally sharing the colour of the pronotum.

Head with vertex impunctate, frontal tubercles with a finely impressed longitudinal line between them and separated from the vertex by a more strongly impressed transverse line, interantennal carina sharply raised. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth longer than third, from the fifth to the last the segments are somewhat thicker, fifth, sixth and seventh equal, each of the following segments somewhat shorter but equal to each other. *Prothorax* broader than long, sides rounded, with their margins somewhat explanate and reflexed, anterior lateral angles thickened, each of the four bearing a fine seta; surface almost impunctate, but seen under a high power to be extremely finely and sparsely punctate, the punctures varying to a certain extent as regards the depth of their impression. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* somewhat broader at the base than prothorax; surface finely, confusedly and more or less closely punctate. *Underside* thinly covered with fine hairs.

Length, 4½–5 mm.

Malay Peninsula: Perak (*Doherty*); Penang, x. 1913 (*G. E. Bryant*). Java. Sumatra: Merang (*Doherty*); Engano Is. (*Doherty*): Ajer Mantcior, viii. 1878 (*O. Beccari*). Borneo: Pengaron (*Doherty*). Burma: Paungdé, Momeik [Momeit] and Karen Mts. (*Doherty*); Tharrawaddy, Bhamo Hills, 4000 ft., v. 1916 (*F. M. Mackwood*).

Type of *Crioceris lusca*, Fabr., in the Copenhagen Museum (Sehestedt Coll.; collected by Daldorff in Sumatra).

Var. **variabilis**, *Jacoby*.

Jacoby described this variety as a distinct species from Sumatra; the Burmese examples before me differ from the normal form in that the pale elytral patch is enlarged to such an extent that it occupies the greater part of the elytron.

Type in the Genoa Museum.

Var. **bipustulata**, *Jacoby*.

In this form, described from Perak, there are only two colours; the whole insect is black and the elytral patch is a transverse band across each elytron. This colour character seems to be constant. All the specimens here recorded were collected by Doherty from the following localities.

BURMA: Karen Mts.; Momeik [Momeit]. ASSAM: Sadiya; Patkai Mts.

Type in the Genoa Museum.

311. **Sebæthe quadrimaculata**, *Jacoby*.

Sebæthe quadrimaculata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 922.

Body oblong-ovate. Colour pitch-brown to black; sometimes the three basal segments of the antennæ are pitch-brown like the general colour of the body, the remaining segments being black; a basal and a post-median area on each elytron are pale yellowish, but never extend either to the lateral edges or to the suture, even when they attain their maximum extent; underside pitch-brown or lighter, the apices of the posterior femora usually black.

Head with vertex impunctate except for one or two scattered punctures; frontal tubercles broad, with a faintly impressed line between them, and separated from the vertex by a deeply impressed transverse line in the interocular space; interantennal carina sharp. Antennæ extending slightly beyond the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth longer than third; from the fifth to the last the segments are more or less nearly equal to each other. *Prothorax* broader than long, sides rounded with their margins somewhat explanate and reflexed, anterior lateral angles thickened, each of the four angles bearing a fine long seta; surface smooth, shining, apparently impunctate but, seen under a high power and in a suitable light, very fine and sparsely distributed punctures are visible, some of them, especially those on the basal part, comparatively stronger; the punctures are more visible in specimens in which the pronotum is pitch-brown than in those in which it is black. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* somewhat broader at base than prothorax; surface confusedly, finely and more or less closely punctate. *Underside* covered with fine hairs.

Length, 5 mm.

Burma: Karen Mts. (*Fea*; type-locality). See also remarks below.

Type in the Genoa Museum.

Jacoby described this species from one example. I have before me five examples, all collected by Doherty from Burma, four of them from the Ruby Mines and one from Momeit, and another example from Sikkim (Mungphu) collected by Atkinson. In two of the Ruby Mines examples the pronotum is pitch-brown, and the pale patches on the elytra have expanded to such an extent that the dark colour is reduced to a transverse band; in the other Burmese examples the dark colour forms a much broader band, reducing considerably the paler areas; in the example from Mungphu, Sikkim, these latter are four rounded patches. Thus it is seen that the relative proportion of the dark and pale parts on the elytra varies a great deal, as also the degree of intensity of the pitch-brown or black colour. Moreover, Baly described *Sebæthe quadripustulata* (Ent. Mo. Mag. xiii, 1876, p. 80) from Java, and in this form the same pattern on the elytra is observable. It is quite probable that the Burmese form is a variety of the Javanese, or *vice versâ*. I believe that specimens with the elytral pattern described above, occurring in Sumatra, Java, Borneo and Burma and extending to Mungphu, probably constitute a single species which tends to produce local races.

312. Sebæthe elongata, *Jacoby*.

Sebæthe elongata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 922.

Body elongate, parallel-sided. Colour pale brown; the three basal segments of the antennæ brown, the rest fuscous; legs rather darker, abdominal sternites also slightly darker.

Head impunctate, frontal tubercles well developed, subquadrate; eyes very large; lower portion of the face deflexed, rather concave; maxillary palpi not much thickened. Antennæ extending almost to the end of the elytra, the third and following segments elongate and more or less nearly equal to each other. *Prothorax* more than twice as broad as long, not narrowed in front, sides slightly rounded, with a rather broad margin; surface impunctate, with several ill-defined depressions. *Elytra* parallel-sided, rather broadly margined, very closely and finely punctate. *Underside*: first segment of posterior tarsi rather longer than the two following segments together.

In the female the antennæ are much shorter.

Length, 5 mm.

Burma: Karen Mts. (*Fea*).

Type in the Genoa Museum. I have not seen the type of this species.

313. Sebæthe immaculata, *Jacoby.*

Sebæthe immaculata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 923.

Body comparatively narrow, elongate. Colour pale brown; the three basal segments of the antennæ brown; the rest black; sometimes the fourth segment is also brown; posterior femora blackish at the apex.

Head with vertex impunctate, frontal tubercles well developed, separated by a longitudinal impressed line, interocular space with a transverse impressed line, interantennal carina sharp. Antennæ scarcely extending to half the length of the body; first segment long and club-shaped, second small, third longer than second, fourth about equal to third; the following segments more or less nearly equal to each other; amongst the hairs on the antennæ, a few on each segment, particularly on the apical segments, are longer and stand out more prominently. *Prothorax* much longer than broad, sides rounded, lateral margins somewhat explanate and reflexed, anterior lateral angles thickened; surface impunctate (in two specimens from the localities named below, which are in the British Museum and bear Fea's labels and Jacoby's labels of identification, I can see no punctures on the pronotum, even when it is magnified sixty-six times; yet Jacoby states that the pronotum is extremely finely punctate). *Scutellum* broad, triangular, impunctate. *Elytra* hardly broader at base than prothorax; surface very finely and more or less closely and confusedly punctate. *Underside*: first segment of posterior tarsi somewhat longer than the following two together.

Length, 5 mm.

TENASSERIM: Kawkareik [Kawkareet] (*Fea*). BURMA: Palon; Pegu, viii–ix. 1887 (*Fea*).

Type in the Genoa Museum. There are also two examples in the British Museum, one of which (from Tenasserim) is marked "type."

314. Sebæthe intermedia, *Jacoby.*

Sebæthe intermedia, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 105.

Body elongate-ovate. Colour obscure brown; antennæ (except the two basal segments, which are brown) black; sometimes the posterior tarsi are piceous.

Head with vertex impunctate, interocular area with an impressed transverse line, frontal elevations more or less triangular in shape, interantennal carina well developed. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second much shorter, third longer than second, the third and following segments more or less nearly equal. *Prothorax* about twice as broad as long, sides strongly rounded, with narrow reflexed margins, anterior angles slightly pointed, posterior

obtuse; surface impunctate. *Scutellum* broad, triangular, with the apex rounded, impunctate. *Elytra* extremely finely and remotely punctate, the apical margins furnished with single seta-like hairs. *Underside*: first segment of posterior tarsi nearly as long as the following segments together.

Length, 4 mm.

NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

315. **Sebæthe suturalis**, *Jacoby*.

Sebæthe suturalis, Jac., Proc. Zool. Soc. Lond. 1887, p. 91.

Body oblong-ovate. Colour dark brown; antennæ (except the three basal segments, which are brown) fuscous; a more or less distinct sutural stripe, narrowed behind and not extending to the apex of the elytra, piceous; sometimes the apices of the middle and posterior tibiæ and their corresponding tarsi are blackish.

Head not longer than broad, impunctate, frontal tubercles well developed, transverse and nearly contiguous, interantennal carina short but distinct. Antennæ two-thirds the length of the body; first segment long and club-shaped, second thick and small, third one-half longer than second but slightly shorter than fourth, fifth to seventh equal, the rest somewhat stouter. *Prothorax* three times as broad as long, sides slightly rounded and narrowly margined, margins reflexed, anterior angles thickened; surface somewhat convex and, seen under a high power, very finely and sparsely punctate. *Scutellum* broadly triangular, impunctate. *Elytra* hardly broader at base than prothorax, slightly widened towards the middle, their apices rounded, the sides with a narrow reflexed margin; surface very finely and moderately closely punctate. *Underside*: first segment of posterior tarsi as long as the two following together.

Length, 4 mm.

CEYLON: Dikoya, 3800–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type in the British Museum.

316. **Sebæthe ceylonensis**, *Jacoby*.

Sebæthe ceylonensis, Jac., Proc. Zool. Soc. Lond. 1887, p. 91.

Body oblong-ovate. Colour obscure brown; in some examples the seven apical segments of the antennæ and the legs are blackish.

Head with vertex almost impunctate; eyes very large; inter-ocular space with a deeply impressed transverse line, frontal tubercles broad, interantennal carina well developed. Antennæ two-thirds the length of the body, slender; first segment long and club-shaped, second small, third longer than second, fourth slightly longer than third, fifth to seventh about equal and the following

segments equal to each other. *Prothorax* much broader than long, sides rounded and narrowly margined, margins reflexed; surface finely and more strongly punctate, the stronger punctures sparsely distributed, the finer punctures closer. *Scutellum* triangular, impunctate. *Elytra* hardly broader at base than prothorax, widened towards the middle, very closely and finely punctate, the punctures being stronger than those of the pronotum.

Length, 4–5½ mm.; *breadth*, 3–3½ mm.

CEYLON: Bogawantalawa (*G. Lewis*); Kandy (type-locality), 1546–1727 ft., 17–23. ii. 1882 (*G. Lewis*); Balangoda, 1776 ft.; Galle, on coast level, 27. xi–4. xii. 1881; Colombo, 27. xi–4. xii. 1881; Kitulgalle, 1700 ft., 17–20. i. 1882; Nuwara Eliya, 6234–8000 ft., 8. ii. 1882 (collected by G. Lewis from all these localities).

Type in the British Museum.

This species shows certain abnormalities, in that in one and the same specimen the two antennæ may be differently coloured, or one elytron may differ from the other in coloration. It is unfortunate that Jacoby selected one such example as the type.

317. **Sebæthe lychnites**, sp. nov.

Body oblong. Colour clear shining brownish-yellow; scutellum darker; eyes black.

Head with vertex impunctate, frontal tubercles oblique with a deep impressed line between them, interantennal carina sharply raised, clypeus concave. Antennæ slender, extending to about the middle of the elytra; first segment long and club-shaped, second small, third about twice as long as second, fourth about as long as third (in certain aspects the fourth may appear to be slightly longer than the third), fifth and following segments somewhat shorter and about equal to each other. *Prothorax* much longer than broad, sides rounded with their margins somewhat explanate and reflexed, each of the four lateral angles with a fine seta; surface sparsely and distinctly punctate. *Scutellum* triangular, smooth and impunctate. *Elytra* slightly broader at base than prothorax, more or less parallel-sided, margins somewhat explanate; surface confusedly, distinctly and more or less closely punctate, the punctures more strongly impressed than those of the pronotum. *Underside* covered with fine hairs; abdominal sternites punctate.

Length, 6 mm.; *breadth*, 3½ mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum. Described from one example, in which there are some black spots on the pronotum and on the left elytron and one or two on the right elytron, but these appear to be accidental.

318. **Sebæthe montivaga**, sp. nov.

Body oblong-ovate, somewhat broadened behind the middle. Colour pale brownish-yellow; the basal part of the elytra is somewhat darker, possibly the unique example was not quite mature when captured and, had it been so, the whole of the elytra might have been darker; eyes black; antennæ black, with the two basal segments brown; tibiæ and tarsi of all the legs pitch-brown.

Head with vertex impunctate; frontal tubercles oblique with a deep impression between them, and separated from the vertex by two oblique lines meeting the median line in the centre; at the apex of each of these oblique lines there is a little depression. Antennæ slender, extending to about the middle of the elytra; first segment long and club-shaped, second small, third much longer than second, fourth somewhat longer than third, fifth to seventh equal to each other in length; the next four segments somewhat shorter and equal to each other. *Prothorax* about twice as broad as long, sides rounded, with their margins somewhat explanate and reflexed, anterior lateral angles thickened; surface very finely and sparsely punctate. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* slightly broader at base than prothorax; surface confusedly and finely punctate, the punctures not so fine as those on the pronotum. *Underside* covered with fine hairs.

Length, 6 mm.; *breadth*, 4 mm.

BURMA: Karen Mountains (*Doherty*).

Type in the British Museum. Described from one example.

319. **Sebæthe andamanica**, sp. nov.

Body oblong. Colour fawn-brown; eyes black; antennæ piceous.

Head with vertex impunctate, interocular space with a transverse impression and a central depression, frontal tubercles and interantennal carina developed. Antennæ slender, extending to about the middle of the elytra; first segment elongate and club-shaped, second small, third longer than second, fourth distinctly longer than third, fifth to seventh equal, very slightly thicker, the last four segments somewhat shorter, appearing thinner and equal to each other. *Prothorax* about twice as broad as long, sides rounded, with their margins somewhat explanate and reflexed, anterior lateral angles thickened; surface very finely and sparsely punctate. *Scutellum* triangular, with the surface smooth and impunctate. *Elytra* slightly broader at base than prothorax; surface confusedly and more or less closely punctate, the punctures being more strongly impressed than those of the pronotum. *Underside* covered with fine hairs.

Length, 5 mm.; *breadth*, slightly less than 3 mm.

ANDAMAN ISLANDS (*Captain Wimberley*).

Type in the British Museum. Described from two examples.

320. Sebæthe brevicollis, *Jacoby.*

Sebæthe brevicollis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 106.

Body oblong-ovate. Colour brown; the three basal segments of the antennæ brown like the body, the rest black.

Head impunctate, vertex sharply delimited from the front by a deeply impressed transverse line, frontal elevations transversely subquadrate, interantennal carina sharp. Antennæ extending beyond the middle of the elytra; first segment club-shaped, second small, third equal to fourth, the next and the following segments somewhat shorter and about equal to each other.

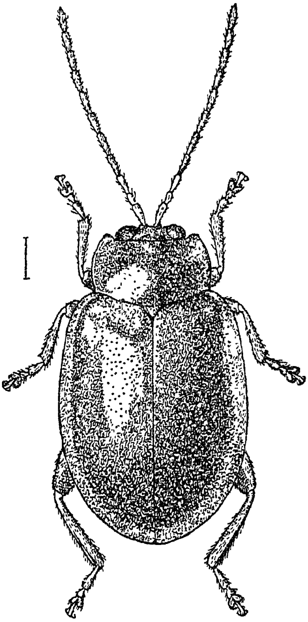

Fig. 130.—*Sebæthe brevicollis*, Jac.

Prothorax not more than twice as broad as long, sides rounded, narrowly margined, margins reflexed, anterior angles oblique and thickened; surface extremely minutely punctate. *Scutellum* triangular, with apex rounded and surface impunctate. *Elytra* broader at base than prothorax, lateral margins somewhat explanate, the explanate margin being clearly delimited along the inner side by a line; surface finely and rather closely punctate.

Length, 5–6 mm.; *breadth*, $3\frac{1}{2}$–$3\frac{3}{4}$ mm.

South India: Anaimalai Hills (Andrewes Coll.).

Type in the British Museum.

321. Sebæthe cænotes, sp. nov.

Body ovate. Colour entirely red-brown; eyes black.

Head impunctate; across the interocular space is a strongly impressed line; frontal tubercles with a longitudinal impressed line between them, interantennal carina sharp. Antennæ extending to the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth somewhat longer than third; the following segments about equal to each other. *Prothorax* about twice as broad as long, sides gently rounded, with their margins feebly explanate and reflexed, anterior lateral angles somewhat produced; surface smooth, very finely and sparsely punctate. *Scutellum* triangular, surface smooth and impunctate. *Elytra* hardly broader at base than prothorax; surface confusedly and finely punctate, the punctures being not very close together. *Underside* covered with fine hairs.

Length, $3\frac{1}{2}$ mm.

TENASSERIM: Mergui (*Doherty*).

Type in the British Museum. Described from one example.

322. Sebæthe neelys, sp. nov.

Body oblong, parallel-sided, with the apex rounded. Colour dark brown; the eight apical segments of the antennæ black, the basal three brown (except in one example).

Head with vertex impunctate, frontal tubercles with a longitudinal impressed line and separated from the vertex by a transverse impressed line across the interocular space, interantennal carina sharp. Antennæ extending to a little distance beyond the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth hardly longer than third; the following segments about equal to each other, the last but one shorter. *Prothorax* broader than long (but distinctly less than twice as broad as long), sides rounded with their margins somewhat explanate and reflexed, anterior lateral angles slightly produced and thickened; surface smooth, with a few scattered, fairly strong punctures on the basal part, some of these punctures being stronger than others, while the front part is impunctate. *Scutellum* triangular, with the surface smooth and impunctate. *Elytra* somewhat broader at base than prothorax, lateral margins reflexed; surface more or less closely, confusedly and fairly strongly punctate. *Underside* covered with fine hairs.

Length, $3\frac{1}{2}$ mm.

BURMA: Ruby Mines (*Doherty*).

Type in the British Museum. Described from four examples.

323. **Sebæthe patkaia**, sp. nov.

Body ovate. Colour bright brown to dark brown; the two basal segments of the antennæ brown, the third piceous and the rest black; the central part of the abdominal sternites may be fuscous.

Head with vertex impunctate, frontal tubercles separated from the vertex by an impressed line across the interocular space, and with a longitudinal impressed line between them, interantennal carina developed. Antennæ extending beyond the middle but not reaching the apex of the elytra; first segment long and club-shaped, second small, third longer than second, fourth hardly longer than third; the following segments are more or less nearly equal to each other, but the last but one may be slightly shorter. *Prothorax* more transverse than in *S. neelys*, about twice as broad as long, sides rounded, with their margins somewhat explanate and reflexed, anterior lateral angles thickened; surface smooth, more punctate on the basal than on the front part. *Scutellum* triangular, with surface smooth and impunctate. *Elytra* somewhat broader at base than prothorax, lateral margins slightly reflexed: surface more or less closely and confusedly punctate, the punctures being fairly strong. *Underside* covered with fine hairs.

Length, 3–3½ mm.

ASSAM: Patkai Mts. (*Doherty*); Manipur, one example (*Doherty*).

Type in the British Museum. Described from four examples.

324. **Sebæthe pingala***, sp. nov.

Body oblong, parallel-sided. Colour pale brownish-yellow; the seven apical segments of the antennæ black, the fourth segment piceous, and the three basal segments yellow-brown; apices of posterior femora above, and the breast, fuscous.

Head with vertex impunctate, interocular space with a transverse impressed line, interantennal carina sharp. Antennæ hardly extending to the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth slightly longer than third; from the fifth the segments are more or less nearly equal. *Prothorax* broader than long, sides rounded, with margins somewhat explanate and reflexed; surface finely and sparsely punctate. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, lateral margins somewhat explanate; surface confusedly, finely and more or less closely punctate. *Underside* thinly covered with fine hairs.

Length, 4½ mm.

TENASSERIM: Tavoy (*Doherty*).

Type in the British Museum. Described from one example.

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* Sanskrit, meaning a brown colour.

325. **Sebæthe nigritarsis**, *Jacoby*.

Sebæthe nigritarsis, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 106.

Body oblong-ovate. Colour reddish-brown above, underside paler; labrum brown; antennæ (except the three basal segments, which are brown) and tarsi black.

Head with vertex impunctate, interocular space with a deeply impressed transverse line, frontal tubercles transverse, interantennal carina well developed. Antennæ hardly extending to the middle of the elytra; first segment long and club-shaped, second short and stout; the third, in the three male examples before me, is somewhat stouter than the same segment in the one female example, where it is distinctly but slightly longer than the second, while in the male, perhaps owing to its comparatively stouter shape, it may appear to be nearly equal in length to the second; the following thicker and about equal to each other. *Prothorax* about twice as broad as long, sides rounded, anterior angles slightly produced outwards, lateral margins narrowly reflexed; surface sparsely scattered over with minute punctures. *Scutellum* broad, triangular, with the apex rounded and surface impunctate. *Elytra* hardly broader at base than prothorax, slightly widened towards the middle, with narrow reflexed margins; surface minutely and closely punctate. *Underside*: epipleura of the elytra broad and concave; the first segment of the front and middle tarsi in the male is enlarged; first segment of posterior tarsi elongate.

Secondary sexual characters are noted under the antennæ and tarsi.

Length, $3\frac{3}{4}$ mm.

SOUTH INDIA: Anaimalai Hills (type-locality; Andrewes Coll.).

Type in the British Museum.

326. **Sebæthe nigricornis**, *Baly*.

Sebæthe nigricornis, Baly, Trans. Ent. Soc. Lond. 1877, p. 164.

Body ovate, moderately convex. Colour shining dark to pale brown; the three basal segments of the antennæ brown, the fourth partly brown, the rest black.

Head with vertex impunctate, surface deeply depressed in front of the vertex and behind the frontal tubercles, particularly at each side, frontal tubercles well defined, interantennal carina well developed. Antennæ extending to about the middle of the elytra; first segment long and club-shaped, second small, third longer than second, fourth somewhat thicker than, and about equal in length to, the third; the rest about equal to each other and slightly thickened. *Prothorax* about three times as long as broad, sides rounded, lateral margins somewhat explanate, reflexed, and produced forwards to a certain extent at the anterior lateral angles; surface smooth, extremely finely and very sparsely punctate

Scutellum broad, triangular, with apex rounded and surface smooth and impunctate. *Elytra* hardly broader at base than prothorax, broadly ovate and broadly rounded at apex: surface minutely but not very closely punctate, the punctures visible under high power.

Length, $4\frac{3}{4}$ mm.

NILGIRI HILLS. BOMBAY: Belgaum (Andrewes Coll.). CAMBODIA (type-locality). MENTAWEI ISLANDS: Sipora, v–vi. 1894 (*Modigliani*)

Duvivier, not having seen Baly's type, doubtfully identified from the description an example from Kurseong, collected by P. Braet; see Ann. Soc. Ent. Belg. xxxvi, 1892, p. 425. Apparently this species has a wide distribution.

Type in the British Museum.

Genus **ALYTUS**, *Jacoby*.

Alytus, Jac., Proc. Zool. Soc. Lond. 1887, p. 98.

GENOTYPE, *Alytus ceylonensis*, Jac.

Body ovate, broadest in the middle, constricted between the prothorax and the elytra, strongly pointed towards the apex. *Head* broad; eyes strongly convex; frontal tubercles prominent. Antennæ longer than the body, slender, except the first two segments, which are more thickened than the others. *Prothorax* narrowed behind, broadest in front, strongly convex, with a transverse channel in front of the base. *Elytra* punctate-striate. *Underside*: prosternum narrowly elongate, much longer than broad; anterior coxal cavities open; mesosternum distinct, subquadrate; posterior femora strongly incrassate; posterior tibiæ with an acute spine on the underside at the apex; first segment of posterior tarsi as long as the two following segments together; claws appendiculate.

Range. Ceylon.

327. **Alytus ceylonensis**, *Jacoby*.

Alytus ceylonensis, Jac., Proc. Zool. Soc. Lond. 1887, p. 98.

Body ovate, constricted between the prothorax and the base of the elytra, broadened in the middle and pointed behind. Colour shining brown; apices of posterior femora piceous.

Head broad, vertex convex and impunctate, frontal tubercles strongly raised. Antennæ longer than the body, sparsely covered with silvery hairs, the apical segments not thickened; first segment long and thickened, second shorter but thicker than third, the latter slightly shorter than the fourth, fifth equal to fourth, sixth equal to seventh, the rest almost equal to each other except the last, which is slightly shorter and pointed. *Prothorax* almost as broad as long, broadest at the front and constricted behind, sides oblique but nearly straight, front and basal margins straight,

anterior angles slightly expanded, each possessing a seta, posterior angles acute; surface convex from side to side, smooth and impunctate; in front of the base and parallel to it is a transverse channel, not reaching the sides, and containing a few punctures. *Scutellum* triangular, smooth and impunctate. *Elytra* at the base hardly broader than the prothorax; each elytron has eleven regular longitudinal rows of punctures, including a short scutellar and an

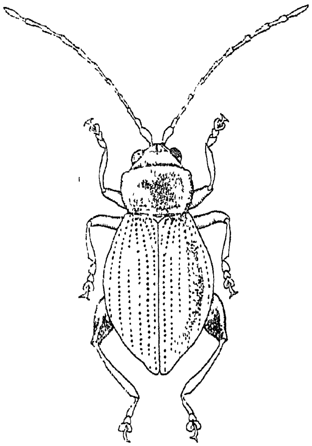

Fig. 131.—*Alytus ceylonensis*, Jac.

extreme marginal row; a longitudinal strip along the margin is somewhat bent inwards. *Underside* strongly convex along the middle, sloping dorsalwards at the sides, generally impunctate, the abdominal sternites having a few fine scattered punctures.

Length, 2–3 mm.; *breadth*, $1\frac{1}{4}$ mm.; *length of antenna*, nearly 3 mm.

Ceylon: Bogawantalawa, 4900–5200 ft., 28. ii–12. iii. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **PHILOGEUS**, *Jacoby*.

Philogeus, Jac., Proc. Zool. Soc. Lond. 1887, p. 95.

Genotype, *Philogeus fulvipennis*, Jac.

Body ovate, convex, subcylindrical. *Head* with frontal tubercles obsolete; eyes large; maxillary palpi robust. Antennæ robust, dilated towards apex. *Prothorax* quadrate, convex, with a shallow transverse depression in front of the basal margin. *Elytra* finely punctate-striate. *Underside*: prosternum longer than broad; anterior coxal cavities open; mesosternum transversely subquadrate; posterior femora strongly incrassate; posterior tibiæ

dilated and rather flattened at the apical end, with a shallow excavation along the upper surface, and with a spine at the apex on the underside; first segment of posterior tarsi longer than the two following segments together; claws bifid, the base of each broad, the outer branch of each claw strongly chitinised and sharply pointed, the inner less chitinised and broader, a feature which is better visible when viewed from the underside.

Range. Ceylon.

328. **Philogeus fulvipennis**, *Jacoby.*

Philogeus fulvipennis, Jac., Proc. Zool. Soc. Lond. 1887, p. 96.

Colour brown; head, antennæ, prothorax and legs black.

Head: vertex convex, smooth and impunctate, interantennal carina acutely raised. Antennæ about a millimetre shorter than the body; first segment long and thickened, second shorter and thicker than third, fourth equal to third, fifth very slightly

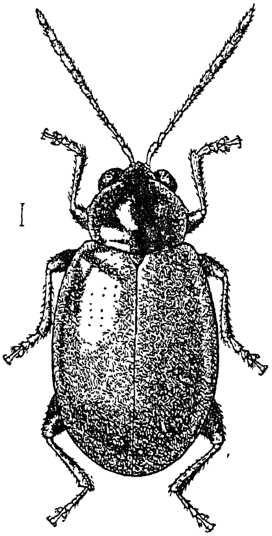

Fig. 132.—*Philogeus fulvipennis*, Jac.

longer, sixth shorter than fifth, seventh, eighth and ninth stouter and more thickly covered with bristle-like hairs, tenth and eleventh thinner, the latter being small and pointed. *Prothorax* as broad as long, front margin straight, basal margin widely rounded, sides straight, at the anterior angles the corners are oblique, each of the anterior and posterior angles possessing a seta-bearing pore; surface strongly convex, smooth, shining and (seen under a high power) with a few very fine scattered punctures. *Scutellum*

broad, smooth and impunctate, with apex broadly rounded. *Elytra* broader than prothorax; on each elytron there are about eleven rows of punctures, including a rather long scutellar and an extreme marginal row; the punctures themselves are very fine and in many places almost obsolescent, thus rendering the counting of the rows difficult; interstices, seen under a high power, extremely minutely and sparsely punctate. *Underside*: smooth, shining, impunctate.

Length, 3 mm.; *breadth*, 2 mm.

CEYLON: Dikoya, 3800–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*).

Type in ihe British Museum.

Genus **MANOBIA**, *Jacoby*.

Manobia, Jac., Ann. Mus. Civ. Genova, xxii, 1885, p. 73.

GENOTYPE, *Manobia nigripennis*, Jacoby (Sumatra). This is the first species which Jacoby described when erecting the genus.

Body ovate-subquadrate, convex. *Head*: antennæ almost as long as the body, the four or five terminal segments slightly thickened. *Prothorax* subquadrate, its surface with a deeply impressed line in front of the basal margin. *Scutellum* broadly ovate, its apex rounded. *Elytra* broader at base than prothorax, deeply depressed behind the base, the latter strongly raised; surface punctate-striate, the seriate punctures deep and large. *Underside*: front coxal cavities open behind; posterior femora strongly incrassate; tibiæ slender, the front and middle pairs without any spine at the apex, the posterior pair with a small spine at the apex; first segment of posterior tarsi equal to the two following together; claws appendiculate.

Range. India, Ceylon, Sumatra, Java.

Key to the Species.

Antennæ black, with the four or five basal segments and the last segment brown ..	*M. apicicornis*, Jac., p. 407.
Antennæ always entirely brown	*M. dorsalis*, Jac., p. 409.

329. **Manobia apicicornis**, *Jacoby*.

Manobia apicicornis, Jac., Proc. Zool. Soc. Lond. 1887, p. 89.

Body oblong, somewhat narrowed at the apex. Colour piceous or black; head, prothorax and legs deep brown; antennæ black with the four or five basal and the last segment brown; elytra black with the apex brown. Sometimes the insect is entirely deep brown, and in some cases obscure piceous with the tibiæ brown.

Head impunctate; frontal tubercles strongly raised, of an elongate triangular shape, delimited behind by a deep transverse impression which extends to the inner margins of the eyes.

Antennæ nearly as long as the body; first segment long and club-shaped, second thicker than, but equal to, third, fourth somewhat longer than third and equal to fifth; the last four somewhat thickened. *Prothorax* transversely quadrate, sides straight, posterior margin very slightly sinuate, anterior angles obliquely truncate and slightly thickened; surface with a deep, strongly sinuate, transverse impression near the base, containing some punctures and extending nearly to the posterior angles, the latter produced into a tubercle; surface convex and impunctate.

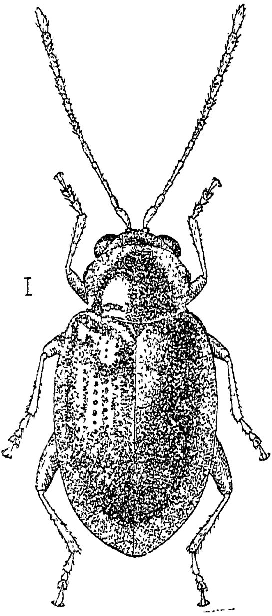

Fig. 133.—*Manobia apicicornis*, Jac.

Scutellum small, triangular, impunctate. *Elytra* with a well-marked basal depression, shoulders prominent; surface strongly punctate-striate, each elytron with eleven rows including a short scutellar row, and the punctuation diminishing towards the apex; interstices slightly costate near the sides on the basal part. *Underside*: prosternum rather broad.

Length, 2½ mm.

CEYLON: Dikoya, 3800–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*); Bogawantalawa, 4900–5200 ft., 21. iii.–4. iv. 1882 (*G. Lewis*).

Type in the British Museum.

330. **Manobia dorsalis**, *Jacoby*.

Manobia dorsalis, Jac., Ann. Soc. Ent. Belg. xl, 1896, p. 266.

Colour of head and underside black; antennæ and legs brown; elytra brown, with a large ill-defined broad longitudinal mark, occupying the base and gradually extending, though narrowing, towards the apex, bluish-black. In one variety the head is brown, and the discoidal bluish-black area on the elytra very faint. Sometimes the apices of the hind femora are darker.

Head impunctate, distinctly obliquely channelled between the eyes. Antennæ extending to the middle of the elytra; second and third segments equal, but the former is thicker; from the seventh the segments are slightly longer and gradually thickened. *Prothorax* one-half broader than long, sides straight, anterior angles oblique; surface with a transverse deep sinuate furrow near the base, impunctate. *Elytra* with the basal portion swollen, strongly punctate-striate; each elytron has eleven rows of punctures, including a short scutellar row.

Length, 2 mm.

MADRAS: Madura (Andrewes Coll.).

Type in the British Museum.

Genus **TEGYRIUS**, *Jacoby*.

Tegyrius, Jac., Proc. Zool. Soc. Lond. 1887, p. 97.

GENOTYPE, *Tegyrius metallicus*, Jac.

Body ovate, cylindrical. *Head* broad. Antennæ filiform. *Prothorax* quadrate, with an impressed line in front of, and parallel to, the basal margin. *Elytra* broader than prothorax, convex.

Fig. 134.—*Tegyrius metallicus*, Jac.; hind tibia, showing the excavation.

Underside: anterior coxal cavities open; prosternum broad, subquadrate; mesosternum broader than long, its base emarginate; posterior femora strongly incrassate; posterior tibiæ short, dilated, longitudinally channelled on the upper side and with a small spine at the apex; first segment of posterior tarsi as long as the three following joints together; claws appendiculate.

Range. Ceylon.

331. Tegyrius metallicus, *Jacoby.*

Tegyrius metallicus, Jac., Proc. Zool. Soc. Lond. 1887, p. 97.

Body ovate, subcylindrical. Colour of upper side metallic greenish-æneous; legs, the posterior femora excepted, yellow-brown; the rest of the body black. The coloration varies; the first two segments of the antennæ, the legs and tarsi are sometimes stained with piceous. Posterior femora always piceous.

Head: vertex smooth, impunctate, frontal tubercles and inter-antennal carina rather indistinct. Antennæ nearly as long as the

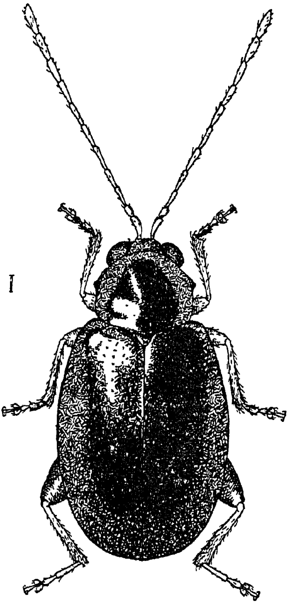

Fig. 135.—*Tegyrius metallicus*, Jac.

body; first segment long and thickened, second thicker but shorter than third, fourth slightly longer than third and equal to fifth, sixth and seventh equal to each other; the next four segments become successively shorter and very slightly thicker than the preceding segments. *Prothorax* as broad as long, front margin straight, basal margin rounded, sides straight; at the anterior angles the corners are oblique, and each of the anterior and posterior angles possesses a seta-bearing pore; parallel to the basal margin and in front of it there is a shallow depression; surface strongly convex, smooth and impunctate. *Scutellum* broad, triangular, with apex broadly rounded, surface smooth and

impunctate. *Elytra* broader than prothorax, humerus convex; surface very minutely and sparsely punctate, the punctures being more or less regularly arranged in longitudinal rows. *Underside*: the sides of the elytra extend vertically much beyond the level of the abdomen, and consequently the latter looks deeply imbedded; the underside is sparsely covered with longish silvery hairs, which are more numerous on the apical part of the surface and sides of the abdomen.

Length, $2\frac{1}{4}$ mm.

CEYLON: Bogawantalawa, 4900–5200 ft., 28. ii.–12. iii. 1882 (*G. Lewis*).

Type in the British Museum.

Genus **HERMÆOPHAGA**, *Foudras.*

Hermæophaga, Foudras, in Mulsant, Hist. Nat. Col. France, Altisides, 1860, p. 299; Chapuis, Gen. Col. xi, 1875, p. 125.

GENOTYPE, *Haltica cicatrix*, Illiger (Europe).

Small, oval, convex beetles. *Head*: frontal tubercles and interantennal carina developed. Antennæ about half the length of the body, slender, somewhat thickened towards the apex; the fourth segment is the shortest. *Prothorax* broader than long, sides gently rounded, anterior angles thickened; surface uniformly convex; an ante-basal transverse impression is present. *Scutellum* triangular, with apex rounded. *Elytra* broader at base than prothorax; punctuation generally confused but sometimes irregularly arranged in longitudinal rows. *Underside*: prosternal process narrow; front coxal cavities open behind; posterior femora moderately thickened; tibiæ subcylindrical; tarsi short, first segment of the posterior pair hardly equal to the two following together; claws appendiculate.

Range. World-wide.

332. **Hermæophaga indica**, *Jacoby.*

Hermæophaga indica, Jac., Ann. Soc. Ent. Belg. xlvii, 1903, p. 105.

Body ovate. Underside, legs and antennæ blackish; head, the two or three basal segments of the antennæ, and the prothorax brown; elytra metallic blue; coxæ and the last segment of the tarsi more or less brown; scutellum black.

Head impunctate, frontal tubercles feebly indicated, interantennal carina short and broad. Antennæ rather slender; first segment long and club-shaped, second thicker than, but equal to, third, fourth shorter; from the fifth the segments are slightly elongate and thickened. *Prothorax* transverse, subquadrate, sides nearly straight, anterior angles obliquely thickened, posterior margin rounded and slightly produced at the middle; seen under

a high power the surface is extremely minutely and sparsely punctate, with a feeble transverse furrow near the base, which furrow is bounded at the sides by a very short and shallow perpendicular impression. *Scutellum* triangular, smooth, impunctate. *Elytra* broader at base than prothorax, convex, closely and finely

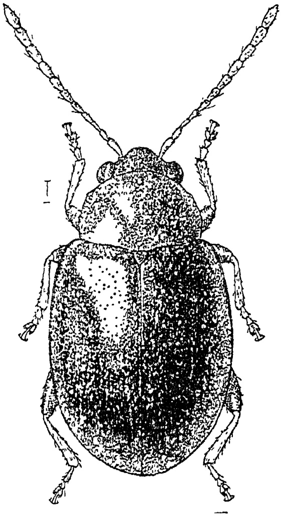

Fig. 136.—*Hermæophaga indica*, Jac.

punctate, the punctuation here and there arranged in irregular rows. *Underside*: posterior tibiæ with a small spine at the apex, the others unarmed.

Length, 2 mm.

NILGIRI HILLS (Andrewes Coll.).

Type in the British Museum.

Genus PHYGASIA, *Baly*.

Phygasia, Baly, Trans. Ent. Soc. Lond. 1876, p. 445.

GENOTYPE, *Phygasia ornata*, Baly.

Body oblong-ovate or ovate, moderately convex. *Head* moderately exserted; eyes comparatively small; vertex convex, generally impunctate, frontal tubercles and interantennal carina well developed. Antennæ comparatively short, extending not much beyond the middle of the elytra, in some cases shorter, sometimes thinner at the apex and more or less stout at the middle (this is probably a secondary sexual character of the male); first segment thickened, second always small and rounded,

third about equal to fourth, in some cases it may be slightly longer, but the fourth is never longer than the third. *Prothorax* always broader than long, sides rounded as a rule, lateral margins often channelled so that the edges appear somewhat reflexed; each of the four corners is generally furnished with a fine seta, and the front angles are often thickened and obtuse, and sometimes produced; surface convex, smooth, while along the basal margin is a shallow transverse furrow or depression. *Scutellum* comparatively large, triangular, with apex rounded. *Elytra* broader at base than prothorax, generally confusedly punctate, the punctures stronger than those of the pronotum when the latter is punctate. Sometimes each elytron has raised costæ, which is probably a secondary sexual character of the male. *Underside*: front coxal cavities open behind; prosternal process narrow in front, somewhat thickened behind: legs more or less robust; tibiæ simple, not channelled on the dorsal surface; posterior tibiæ with a small spine at the apex; posterior femora thickened, channelled on the underside; claws appendiculate.

Range. Asia, Africa.

Key to the Species.

1. Elytra unicolorous	3.
Elytra of at least two colours	2.
2. Elytra black, with the apex red-brown and with a large yellow-white patch on each elytron	*P. ornata*, Baly, p. 413.
Elytra brownish-yellow, with a large ovate sutural black patch common to the two, and their apices black	*P. dorsata*, Baly, p. 414.
3. Upper side entirely brown	4.
Upper side not entirely brown	6.
4. Pronotum, seen under a high power, finely and sparsely punctate	5.
Pronotum impunctate	*P. indica*, Jac., p. 415.
5. Colour shining rich brown; apices of femora and tibiæ, and tarsi, black; antennæ black, underside of first segment brown........	*P. hookeri*, Baly, p. 415.
Colour entirely shining brown; tarsi fuscous; antennæ, except the four basal segments, darker brown	*P. unicolor*, Ol., p. 417.
6. Elytra black; pronotum brown	*P. nigripennis*, Jac., p. 417.
Elytra dark violaceous; pronotum brown.	*P. violaceipennis*, Jac., [p. 418.

333. Phygasia ornata, *Baly*.

Phygasia ornata, Baly, Trans. Ent. Soc. Lond. 1876, p. 445.

Body oblong. Colour shining reddish-brown to paler; underside brown; the two basal segments of the antennæ brown, the third piceous, the rest black; tibiæ and tarsi blackish; elytra black, with the apex red-brown, and with a large yellow-white

patch on each elytron occupying the greater portion of the surface.

Head with vertex impunctate, frontal tubercles and inter-antennal carina well developed. Antennæ extending to a short distance beyond the base of the elytra; first segment club-shaped, second small, rounded, third and fourth about equal, the apical three or four segments thinner. *Prothorax* broader than long, sides rounded, slightly diverging from the base to the middle, anterior lateral angles obtuse, thickened, posterior angles also slightly produced into a setiferous tubercle; surface convex, smooth, impunctate. *Scutellum* triangular, with apex rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, very minutely, confusedly and closely punctate.

Length, 6½ mm. (type-specimen).

HONG KONG (type-locality; *Bowring*). FORMOSA (*Shiraki*).

I have referred to this species four examples, three from the ANDAMAN ISLANDS, one of which was collected by Captain Wimberley, and the fourth from TENASSERIM (Tavoy), collected by Doherty. The variation in colour is slight, Wimberley's specimen having the reddish-brown colour much paler and the tibiæ brown, while another Andaman example shows faint ribs on each elytron, which is probably a secondary sexual character of the male. In Captain Wimberley's Andaman specimen the apical segments of the antennæ are not thinner. In other respects the specimens agree with Baly's type of *ornata*. The specimens from our regions are somewhat smaller.

Type in the British Museum.

334. **Phygasia dorsata**, *Baly*.

Phygasia dorsata, Baly, Ann. & Mag. Nat. Hist. (5) ii, 1878, p. 231.

Body oblong-ovate. Colour shining black; elytra brownish-yellow with a rather ovate sutural black patch, covering both elytra from about the middle (where it is broad) and narrowing at its apex; the apex of the elytra is also black; scutellum black; roots of antennæ, with the apices and undersides of the first, second and third segments, deep brown.

Head with vertex impunctate. frontal tubercles and inter-antennal carina well developed. Antennæ extending to the middle of the elytra; second segment small and rounded, third equal to fourth, fifth to seventh somewhat thickened; after that the segments are progressively thinner. *Prothorax* broader than long, sides rounded, margins channelled, anterior lateral angles produced, thickened and obtuse; the basal transverse furrow well impressed and terminated on either side by a short longitudinal impression; surface convex, smooth and impunctate. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at base than prothorax, somewhat narrowed at the apex, confusedly, finely and closely punctate; on each elytron

are three longitudinal ribs, the outermost of which commences on the humeral callus and extends to three-fourths of the length of the elytron, being more or less interrupted behind its middle, and sending a short ill-defined branch towards the intermediate rib; the latter commences just behind, and rather within, the humeral callus and runs parallel to the outer rib, terminating at about the same distance from the apex of the elytron; the third or innermost rib is placed on the line of junction between the inner and outer parts of the disc and is much shorter than the other two, commencing considerably behind the base and terminating at a short distance behind the middle.

Length, 6–7 mm.

INDIA (type-locality). SIKKIM: Mungphu (*Atkinson*). In recording the locality, Baly states that, although the labels attached to his specimens bore only the word "India," he had seen "Khasia Hills" on labels attached to specimens belonging to Chapuis.

Type in the British Museum.

335. **Phygasia indica**, *Jacoby*.

Phygasia indica, Jac., Ann. Soc. Ent. Belg. xlii, 1898, p. 187.

Body oblong. Colour shining brown; more or less of the underside, the posterior femora, all the tibiæ and tarsi, and the apical segments of the antennæ, are fuscous.

Head with vertex impunctate, frontal elevations and inter-antennal carina well developed. Antennæ extending to the middle of the elytra; first segment club-shaped, second small and rounded, third about equal to fourth, fifth equal to fourth; the following segments about equal, very slightly thickened. *Prothorax* broader than long, sides rounded, margins channelled, the transverse ante-basal furrow shallow, not reaching the sides; surface impunctate. *Scutellum* triangular, with apex rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, humerus convex; surface very finely and confusedly punctate. *Underside* thinly covered with fine hairs.

Length, 5 mm.

S. INDIA: Bangalore (type-locality).

Type in the British Museum.

In the type-specimen there are lighter brownish spots on the pronotum and the elytra, which, I think, are accidental; the other examples of the same series are without any such marks.

336. **Phygasia hookeri**, *Baly*.

Phygasia hookeri, Baly, Trans. Ent. Soc. Lond. 1876, p. 445.

Body oblong-ovate. Colour shining rich brown; apices of femora, tibiæ and tarsi, black; antennæ black, with the underside of their first segment brown; eyes black.

Head broad with vertex impunctate; eyes small; frontal elevations broad, interantennal carina well developed. Antennæ extending almost to the middle of the elytra, robust but thinner towards the apex; first segment long and club-shaped, second small and globular, third to sixth thick and about equal in length, seventh to eleventh progressively more slender. *Prothorax* broader than long, sides diverging from the base to just beyond the middle, thence rounded to the front angles, margins channelled anterior lateral angles rounded, posterior angles almost r

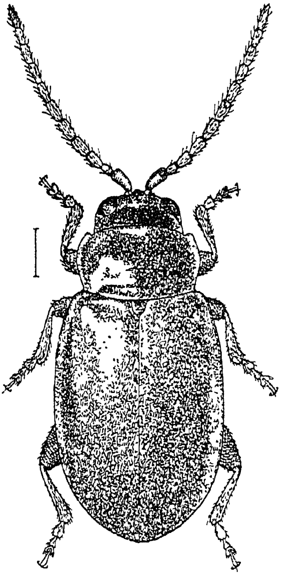

Fig. 137.—*Phygasia hookeri*, Baly.

there is a shallow transverse depression along the basal margin; surface gently convex, sparsely and finely punctate. *Scutellum* broad, triangular, with apex broadly rounded, surface smooth and impunctate. *Elytra* broader at base than prothorax, humerus convex, rounded; surface confusedly punctate, the punctures being much stronger than those on the pronotum. *Underside* thinly covered with fine hairs.

Length, 6 mm.

ASSAM: Khasi Hills (type-locality; *Dr. Hooker*). SIKKIM: Gopaldhara, Rungbong Valley (*H. Stevens*).

Type in the British Museum.

337. Phygasia unicolor, *Olivier.*

Altica unicolor, Ol., Entomologie, vi, 1808, p. 699, pl. 3, fig. 55.

Body oblong. Colour entirely shining brown; tarsi fuscous; antennæ, except the four basal segments, darker brown; eyes black.

Head with vertex impunctate, frontal elevations and inter-antennal carina well developed. Antennæ extending to the middle of the elytra; first segment club-shaped, second small, rounded, third about equal to fourth; the following segments more or less nearly equal. *Prothorax* broader than long, sides rounded, margins channelled, basal transverse furrow shallow, not extending to the sides; surface convex, seen under a high power and in a suitable light to be extremely minutely and sparsely punctate. *Scutellum* triangular, with apex rounded; surface smooth, impunctate. *Elytra* broader at base than prothorax, humerus convex, rounded; on each elytron, extending longitudinally from the humerus, is a ridge; surface finely, closely and confusedly punctate. *Underside* thinly covered with fine hairs.

Length, 5 mm.

BENGAL (type-locality). NILGIRI HILLS (Andrewes Coll.).

Type probably in the Paris Museum. The above description is taken from specimens identified by Baly.

338. Phygasia nigripennis, *Jacoby.*

Phygasia nigripennis, Jac., Ann. Soc. Ent. Belg. xlviii, 1904, p. 391.

Oblong, rather broader than some other species. Colour of head, prothorax and abdomen, brown; antennæ, breast, legs and elytra, black; scutellum brown to pitch-brown.

Head with vertex impunctate, frontal tubercles and inter-antennal carina well developed. Antennæ extending to a short distance beyond the base of the elytra; first segment thickened, second small, rounded, third about equal to fourth; the following segments more or less nearly equal to each other. *Prothorax* broader than long, sides strongly rounded, anterior and posterior angles with setiferous tubercles; surface convex, smooth, impunctate. *Scutellum* triangular, with apex rounded, surface smooth, impunctate. *Elytra* broader at base than prothorax, confusedly, minutely, and finely punctate.

Length, $5\frac{3}{4}$–6 mm.

SOUTH INDIA: Anaimalai Hills, v. (Andrewes Coll.).

Type in the British Museum.

339. **Phygasia violaceipennis**, *Jacoby*.

Phygasia violaceipennis, Jac., Ann. Soc. Ent .Belg. xlvii, 1903, p. 103.

Body oblong. Colour of head, prothorax and breast, brown; antennæ and legs obscure fuscous, tibiæ and tarsi of a deeper shade; elytra dark violaceous; abdomen black; scutellum brown.

Head with vertex impunctate, frontal tubercles and interantennal carina well developed. Antennæ extending to about the middle of the elytra; first segment thickened, second small, rounded, third appearing slightly longer than fourth, the last three segments somewhat thinner, the preceding four about equal in length. *Prothorax* broader than long, sides rounded, the four corners with setiferous tubercles; surface convex, finely and sparsely punctate, the basal transverse furrow shallow. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at base than prothorax; surface finely, closely, and confusedly punctate.

Length, 4½–5 mm.

South India: Pondicherry.

Type in the British Museum.

Genus **HALTICA**, *Fabricius*.

Altica *, Geoffroy, Histoire des Insectes, i, 1762, p. 244 †; Fabricius, Syst. Ent. 1775, p. 112.

Haltica, Chapuis, Gen. Col. xi, 1875, p. 59.

Graptodera,, Chevrolat, in d'Orbigny, Dict. Univ. Hist. Nat. (original edition) vi, 1845 ‡, p. 307.

Genotype, *Chrysomela oleracea*, Linn. (Europe).

This is the oldest and the most difficult genus in the whole group. The difficulty arises from the fact that insects from very widely separated regions show very little difference in external

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* Fabricius, following Geoffroy, used the word *Altica* without the *H*. Later authors introduced the *H*, in order to make the name more classically correct. As a rule I adhere to the original spelling, but in the present case I do not do so, because it would entail a large number of changes in indexing, etc.

† In this work, in which Geoffroy proposed the name *Altica*, he did not employ the binominal method of nomenclature. Although there is in this case no doubt to which insect he was referring (since he mentioned Linnæus' species no. 35 in the genus *Chrysomela*, Syst. Nat. ed. x), he cannot be regarded as the author of the present genus, because his "Histoire" is for such purposes wholly rejected by common consent. The authorship is, therefore, here ascribed to Fabricius, the next user of the name, as has already been done by other writers on this group.

‡ The correct date is 1845, although 1849 or 1861 may occur on the title-page. See Sherborn and Palmer, "Dates of Charles d'Orbigny's 'Dictionnaire d'Histoire Naturelle, 1839–1849'" (Ann. & Mag. Nat. Hist. (7) iii, 1899, p. 350).

characters, so that the species cannot easily be determined with certainty. The value of colour in this genus is very little, because in a single "catch" of one species, from one locality, it may be blue, blue-black, black, or mixed with violet or purple. Attempts are being made to use the structure of the ædeagus as a differentiating character, but so far no very successful results have been obtained. The genus as a whole should be studied from this point of view, but probably no single worker has yet had the opportunity. Accurate field observations, tested by experimental breeding, are also required.

The form is generally oblong, the species are always winged, the colour is blue or greenish-blue. They are moreover characterized by having distinct frontal tubercles and a sharp frontal ridge on the head. The second and third antennal segments are of equal thickness, and the third and fourth are almost equal in length. The pronotum is furnished at the base with a relatively deep transverse depression, which is not bounded by a longitudinal fold on each side. The elytra are confusedly punctate. The anterior coxal cavities are open behind. The species are relatively large, the Indian forms varying between 3½ and 6 mm. in length.

No key to the species is given, because the relationships of those found within our regions are not well understood.

Range. World-wide.

340. **Haltica foveicollis**, *Jacoby.*

Haltica (*Graptodera*) *foveicollis*, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 190.

Body oblong. Colour greenish-æneous above, and black on the underside; legs black.

Head with vertex impunctate, frontal elevations rather flat, interantennal carina well developed; eyes strongly convex. Antennæ extending to the middle of the elytra; first segment club-shaped, second short, third longer than second, shorter than fourth, fifth about equal to fourth; the following segments are somewhat shorter and about equal to each other in length. *Prothorax* somewhat broader than long, sides greatly rounded, anterior and posterior lateral angles rounded, each bearing a fine seta; surface gently convex, very finely and closely punctate in the male, while in the female the punctures are very sparse; along the base the surface is depressed and in front, on each side of the middle line, is a shallow depression. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at base than prothorax, closely and confusedly punctate; the punctures are stronger than those of the pronotum and along the middle there is an indication of arrangement in one or two rows; in the female there is a costa extending from the shoulder to beyond the middle; behind the scutellum a short longitudinal area is depressed.

Length, 6 mm.

Burma: Rangoon (*Fea*); Toungoo; Tharrawaddy. Tenasserim: Kawkareik [Kawkareet], ii. 1887 (*Fea*).

Type in the Genoa Museum.

341. Haltica semipiceus, *Jacoby*.

Haltica semipiceus Jac., Entomologist, xxxii, 1899, p. 81.

Body oblong. Colour dark blue above, piceous on the underside; the four or five basal segments of the antennæ brownish, the remaining segments piceous; clypeus, labrum and maxillary palpi dark pitch-brown; legs piceous.

Head with vertex convex and impunctate, separated from the front by a transverse impression; frontal tubercles well developed, transverse; clypeus triangularly raised, deflexed in front. Antennæ extending a little distance beyond the middle of the elytra; first segment club-shaped, second small, thick, third and fourth equal, fifth very slightly longer, sixth and each of the following segments somewhat shorter. *Prothorax* somewhat broader than long, very slightly narrowed in front, sides almost straight, margined, anterior angles slightly thickened; surface not smooth, indistinctly and finely punctate; the basal transverse furrow not clearly distinguishable. *Scutellum* triangular, with apex rounded and surface smooth and impunctate. *Elytra* broader at base than prothorax, closely, distinctly and confusedly punctate. *Underside* sparingly pubescent; the spine at the apex of the posterior tibiæ well developed.

Length, 3–3½ mm.

Assam: Khasi Hills (Kraatz Coll.).

Type in the British Museum.

This is the smallest species known from the countries under review.

342. Haltica nigripennis, *Jacoby*.

Haltica (*Graptodera*?) *nigripennis*, Jac., Proc. Zool. Soc. Lond. 1887, p. 83.

Body oblong. Colour of head, antennæ, prothorax, breast and legs yellow-brown; elytra violet-bluish, the abdomen sharing the colour of the elytra, but sometimes the violet component of the colour is not prominent; the antennæ and legs may be piceous in some cases; scutellum brownish.

Head with vertex convex and impunctate, frontal tubercles developed, though in some examples they may appear to be not prominent. Antennæ more than half the length of the body; first segment club-shaped, second small, globular; in some examples each of the segments from the third to the sixth is somewhat thickened at the apex and narrowed at the base; the rest of the segments are slender. *Prothorax* broader than long, sides rounded,

anterior and posterior lateral angles also rounded, front margin straight; surface convex, seen under a high power to be extremely minutely and very sparsely punctate; the basal transverse depression is present although it does not extend to the sides. *Scutellum* narrow, triangular, with apex rounded. *Elytra* nearly parallel-sided, with apex rounded; surface closely, finely and confusedly punctate.

I believe that this species will be regarded as belonging to a different genus. In it the posterior coxal cavities are open behind, the posterior femora are considerably thickened, the posterior tibiæ are somewhat longer than the front or the middle pairs and they end in a spine; the first segment of the posterior tarsi is equal to the two following together, and the claws are appendiculate. But without further material it is convenient to retain the species in *Haltica*.

Length, 4 mm.

Ceylon: Colombo, 7-27. iv. 1885 (*G. Lewis*).

Type in the British Museum.

343. **Haltica cærulescens**, *Baly*.

Graptodera cærulescens, Baly, Trans. Ent. Soc. Lond. 1874, p. 190; id., Cist. Ent. ii, 1878, p. 376.

Body oblong-ovate, convex. Colour metallic blue above and shining blue-black on the underside; antennæ black.

Head with vertex smooth, impunctate; frontal tubercles oblique, transverse, subquadrate, contiguous at the apex, separated from the front by a distinct channel; interantennal carina raised, its lower half compressed and linear, the upper half hastate, the space on either side of the lower portion smooth and impunctate. *Prothorax* one-third broader than long, sides nearly parallel, slightly sinuate at the base, obliquely rounded towards the front margin, anterior angles very obtuse, broadly incrassate, hind angles armed with a sharp tooth; surface smooth and shining, basal depression straight for nearly its whole length, dilated and slightly sinuate at either end, nearly reaching the lateral borders on either side. *Elytra* oblong, broader than prothorax, distinctly punctate, the punctures on the inner part of the surface indistinctly arranged in longitudinal striæ.

Length, $3\frac{3}{4}$–5 mm.

Punjab: Murree (*Stoliczka*). Japan: Nagasaki; Tsu-Shima (*G. Lewis*). China: Chusan.

Type in the British Museum.

Baly first described this species from the above places in Japan and China, but when working out Dr. Stoliczka's collection he referred specimens from Murree (Punjab) to this species (Cist. Ent. 1878, p. 376).

344. Haltica viridicyanea, *Baly.*

Haltica viridicyanea, Baly, Trans. Ent. Soc. Lond. 1874, p. 191; id., Cist. Ent. ii, 1878, p. 376.

Body ovate, convex. Colour above shining greenish-blue; underside blue-black; antennæ black.

Head: surface of lower half of face, on either side of the narrow, distinctly raised carina, irregularly wrinkled: frontal tubercles triangular, contiguous. *Prothorax* scarcely twice as broad as long, sides at the base nearly straight and parallel, in their anterior half obliquely converging and distinctly sinuate, anterior angles slightly produced, obtuse; surface convex, distinctly impressed with some minute punctures, basal impression distinctly bisinuate, terminating on either side at some distance from the lateral border. *Elytra* oblong, convex, finely punctate; interspaces finely granulose.

Length, 3¾ mm.

PUNJAB: Sind Valley (*Stoliczka*). JAPAN: Nagasaki (type-locality; *G. Lewis*).

Type in the British Museum.

When working out Dr. Stoliczka's collection Baly referred specimens from Sind Valley to this species (Cist. Ent. 1878, p. 376).

345. Haltica cyanea, *Weber.*

Haltica cyanea, Web., Obs. Entom. i, 1801, p. 57; Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 429; Jacoby, Ann. Mus. Civ. Genova, xxvii, p. 191.

Haltica birmanensis, Jacoby, Ann. Soc. Ent. Belg. xl, 1896, p. 254.

Dark blue; antennæ black, basal segments brownish at the apex; scutellum nearly black.

Head with vertex impunctate, frontal tubercles strongly raised, triangular, interantennal carina rather broad. Antennæ extending to a little distance beyond the middle of the elytra; third segment double the length of the second but shorter than the fourth. *Prothorax* much broader than long, lateral margins slightly rounded; surface impunctate, the basal transverse furrow sinuate and placed at some distance from the basal margin. *Scutellum* broad, impunctate. *Elytra* closely and strongly punctate, more finely on the apical part; the punctures tend to form rows.

Length, 5 mm.

BOMBAY: Belgaum; Kanara. PUNJAB: Chamba. BURMA: Shwegoo; Kathà; Senmigion: Bhamo; Ruby Mines (*Doherty*); Karen Mts. (*Fea*). TENASSERIM: Thagata (*Fea*). JAVA. SUMATRA.

Type probably in the Copenhagen Museum.

Jacoby described *Haltica birmanensis* as a distinct species, although he found the ædeagus of *H. cyanea* to be identical in structure with that of *birmanensis*. He relied on the apparently slightly greater length of the antennæ, the somewhat less closely

placed punctures on the elytra and the brighter blue colour in *birmanensis*, as characters on which to base a new species. In view of the wide distribution of *H. cyanea* and the remarks made above, it is probably nearer the truth to regard *birmanensis* as a variety of *H. cyanea*.

346. Haltica cœrulea, *Olivier*.

Galeruca cœrulea, Ol., Encyl. Méth. vi, 1791, p. 590; id., Entomologie, vi, p. 640, pl. i, fig. 5, *a–b*.

Body oblong, somewhat narrowed behind. Colour blue above; black on the underside; antennæ and legs black.

Head with vertex impunctate, frontal tubercles varying somewhat in their prominence, interantennal carina well developed, rounded. Antennæ extending to about the middle of the elytra;

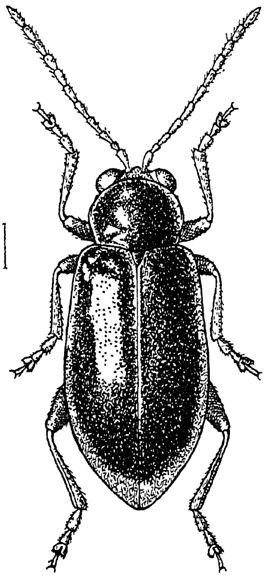

Fig. 138.—*Haltica cœrulea*, Ol.

second segment small, third and fourth about equal. *Prothorax* much broader than long, sides somewhat rounded; ante-basal furrow well impressed; surface very finely and sparsely punctate. *Scutellum* triangular, impunctate. *Elytra* broader at base than prothorax, closely and strongly punctate, the punctures tending to form longitudinal rows. *Underside* covered with fine brownish pubescence.

Length, 6 mm.

NILGIRI HILLS (Andrewes Coll.). COROMANDEL COAST (*Maindron*). CEYLON: Hambantota (*T. B. Fletcher*). ASSAM: Sadiya (*Doherty*).

Location of *type* unknown.

Haltica polita, *Motschulsky*.

Graptodera polita, Motsch., Bull. Soc. Nat. Mosc. xxiv, 1851, part 1, no. 2, p. 665.

When Motschulsky visited London in February 1850, he availed himself of the opportunity of seeing the Museum of the East India Company. Among the insects in the collection of that Museum he found several new species; *polita* was one of them, and he characterised it in a few words in French, of which the following is a translation: "This insect is very near *Graptodera lythri*, Aubé, from which it is distinguished only by its more shining colour and larger form." *G. lythri* is a European species. As the East Indian Museum collection was mainly composed of Javan species, collected by Dr. Horsfield, it is not certain whether *H. polita* really occurs in the regions at present under review. Considering the difficulty of comprehending the relationships of the species of *Haltica*, it is quite possible that *polita* is a synonym of a previously described species.

The *type* cannot be traced.

Genus **PARLINA**, *Motschulsky*.

Parlina, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 420.

GENOTYPE, *Parlina trancisa*, Motsch.

Small ovate insects (in the genotype the elytra are somewhat tapering at the apex). *Head* with interantennal and interocular spaces not smooth. Antennæ generally as long as the body, their points of insertion being close to each other; first segment long and club-shaped, second small, third longer than second but shorter than fourth; from the fourth to the last the segments are elongate and almost equal to each other. *Prothorax* broader than long, and at the base hardly narrower than the base of the elytra; in front of, but close to, the basal margin of the pronotum there is a deep transverse impression which, according to Motschulsky, is terminated on either side by a short longitudinal impression, but actually it is not distinctly so, or at any rate this feature is variable. This last character is found also in *Crepidodera*, from which the present genus differs in having the elytral surface finely and confusedly punctate. *Scutellum* small, triangular, with apex rounded and surface impunctate. *Elytra* completely and confusedly covered with a mixture of very fine and coarser punctures, the latter being distributed at the sides, where two or three short rows may be recognised, with their interstices slightly

raised; this character is particularly visible in the type-species of the genus. Anterior coxal cavities open behind. Prosternum rounded at apex. Claws appendiculate.

Range. Ceylon.

Although I have not seen the type-specimen of the typical species of the genus, yet five examples from Ceylon in the British Museum can be definitely identified as *Parlina trancisa* by the characteristic coloration and the shape of the body. The above generic description is drawn up from these examples.

347. **Parlina trancisa,** *Motschulsky.*

Parlina trancisa, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 420.

Body oblong-ovate. Pronotum, the two basal segments of the antennæ and the apices of the elytra, brownish-yellow; underside deeper brown; the segments of the antennæ (except the first two) fuscous; elytra brownish-green; scutellum bluish.

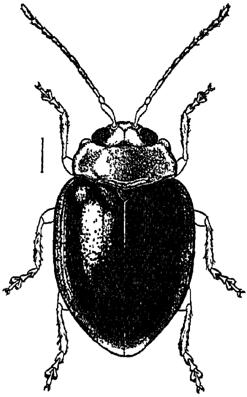

Fig. 139.—*Parlina trancisa,* Motsch.

Head with vertex smooth and impunctate, frontal elevations and interantennal carina distinct. Antennæ long, only about one millimetre shorter than the length of the body; first segment long and club-shaped, second small, shorter than third, fourth longer than third; the remaining segments almost equal to each other and sparsely covered with hairs. *Prothorax* much broader than long, anterior margin almost straight, posterior slightly sinuate, sides rounded, anterior angles rounded and somewhat produced, posterior angles acute, each of the four angles bearing a fine seta; surface (seen under a high power) very minutely punctate. *Scutellum* small, triangular, smooth, impunctate. *Elytra* closely and confusedly covered with finer and coarser punctures, the former being more numerous near the suture and the latter

towards the sides; along the middle of each elytron are two pairs of not very well-defined longitudinal rows, at a certain distance from each other, both pairs being internal to the humerus; along the lateral part of each elytron there are three longitudinal rows, including the extreme marginal row; the interstice between the inner two of these rows is narrow and raised, particularly towards the apex, while that between the second of these rows and the extreme marginal row is broad and similarly raised; humerus prominent. *Underside* smooth, shining and impunctate; tibiæ broadened towards their apices; claws appendiculate.

Length, 4 mm,

Ceylon: Bogawantalawa, 4900–5200 ft., 28. ii. and 12. iii. 1882 (*G. Lewis*); Dikoya, 3800–4200 ft., 6. xii. 1881–16. i. 1882 (*G. Lewis*). Motschulsky's specimens were from Nuwara Eliya, about 8000 ft.

The location of the *type* is unknown to me.

348. **Parlina fulva**, *Jacoby*.

Parlina fulva, Jac., Proc. Zool. Soc. Lond. 1887, p. 88.

Body oblong-ovate. Colour fulvous; the apical segments of the antennæ, the tibiæ and the tarsi, piceous; the four basal segments of the antennæ fulvous; sometimes the whole insect is fulvous.

Head impunctate, frontal tubercles small but distinct, carina short; penultimate segment of maxillary palpi thickened, the apical segment short, acutely pointed. Antennæ nearly as long as the body; second segment short, the following segments nearly equal in length. *Prothorax* transverse, three times as broad as long, sides rounded and narrowly margined, angles rather blunt, scarcely prominent; surface with a distinct transverse groove near the base, not extending to the sides, and either scarcely visibly punctured or entirely impunctate. *Scutellum* triangular. *Elytra* without any basal depression, closely and finely but distinctly punctured. *Underside*: posterior tibiæ mucronate; first segment of posterior tarsi as long as the two following segments together; claws appendiculate; prosternum narrow; anterior coxal cavities open.

Length, 4 mm.

Ceylon.

Type in the British Museum.

Genus **LACTICA**, *Erichson*.

Lactica, Erichs., Arch. f. Naturg. 1847, xiii, i, p. 173; Chapuis, Gen. Col. xi, 1875, p. 124; Jacoby, Biol. Centr.-Amer. vi, pt. i, 1884, p. 270.

Camœna, Baly, Journ. of Ent. i, 1862, p. 458.

Medonia, Baly, Journ. of Ent. i, 1862, p. 459.

Genotype, *Lactica melaleuca*, Erichs. (Peru).

Body oblong. *Head* subtriangular, frontal tubercles and inter-antennal carina well developed; eyes moderately large, either slightly sinuate at the inner margin or entire. Antennæ extending somewhat beyond the middle of the body; first segment long and club-shaped, second half the length of the first, third somewhat longer than second, fourth longer than third; the following segments gradually shortened. *Prothorax* more or less transverse, somewhat narrowed in front, anterior border straight with the lateral angles thickened and very obtuse, sides straight or somewhat rounded, surface with a fairly deep transverse impression, bounded on each side by a short longitudinal impression, at the base. *Scutellum* triangular. *Elytra* oblong-ovate, broadest at the middle or behind, confusedly punctate or with the punctures tending to form longitudinal rows. *Underside*: front coxal cavities open behind; legs more or less slender; anterior tibiæ very slightly dilated at the apex, with two feeble ridges on the outer side; posterior femora thickened, channelled on the underside; posterior tibiæ somewhat bent, with two prominent ridges on the outer side, these being set with hairs, and with a spine at the apex; claws appendiculate.

Range. All parts of the world, more especially the warm regions of America.

Key to the Species.

Body yellowish-red above	*L. silacea*, Illig., p. 427.
Head and pronotum black; elytra either black, each with a large white patch occupying almost all the posterior half, or entirely yellowish-white............	*L. bipustulata*, Jac., p. 428.

349. **Lactica silacea**, *Illiger*.

Haltica silacea, Illig., Mag. Insektenkunde, vi, 1807, p. 121.
Lactica ? silacea, Duvivier, Ann. Soc. Ent. Belg. xxxvi, 1892, p. 430.

Body ovate, shining. Colour yellowish-red; mouth-parts, underside and femora of front legs reddish-yellow; hind femora brownish with the inner side of the under half brownish-yellow; all the tibiæ and tarsi blackish-brown; the middle of the abdominal sternites brownish; antennæ brownish-yellow with the apical half brownish; eyes black.

Head narrower than prothorax. *Prothorax* narrower than elytra, one-half as broad again as long, front and hind margins straight, sides rounded, each of the four corners tuberculiform; upper side gently convex, the basal transverse impression bounded on each side by a short longitudinal impression. *Elytra* smooth.

Length, 2 lin. (5 mm.?).

BENGAL (Daldorff Coll.).

Type in the Copenhagen Museum. I have not seen the type.

Duvivier, in working out Père Cardon's collection from Mandar, doubtfully referred one specimen to this species, and added that it was $4\frac{1}{5}$ mm. long, and yellowish with the tibiæ and tarsi black, that the antennæ were brownish-yellow at the base but darker towards the apex, that the prothorax was shining and smooth, and the elytra closely and finely punctate.

350. **Lactica bipustulata**, *Jacoby*.

Lactica bipustulata, Jac., Ann. Mus. Civ. Genova, xxxii, 1892, p. 919.

Head, antennæ and prothorax shining black; each elytron black, with a large oval white patch from the middle nearly to the apex, and extending to either margin; in some cases the elytra are entirely yellowish-white.

Head with vertex convex, impunctate; frontal elevations strongly developed, triangular. Antennæ extending to half the length of the elytra, slender; third and following segments nearly equal. *Prothorax* transverse, more than twice as broad as long, sides strongly rounded, widened before the middle and with narrow flattened margins, anterior angles slightly produced, posterior angles tuberculiform; upper surface impunctate, with a distinct transverse furrow, bounded by an impressed longitudinal line on either side, before the base. *Elytra* very closely and finely punctate.

Length, $5\frac{5}{8}$ mm.

BURMA: Karen Mts., xii. (*L. Fea*).

Type in the Genoa Museum. I have not seen the type of this species.

Genus **MNIOPHILA**, *Stephens*.

Mniophila, Steph., Ill. Brit. Ent. iv, 1834, p. 330.

GENOTYPE, *Mniophila muscorum*, Koch (Europe).

The insects belonging to this genus are small, strongly convex and gibbous. Stephens distinguished this from other genera by the singularity of the antennæ, of which the eighth segment is minute, as in many fungivorous insects, and the three apical segments form a club. The head is sunk in the prothorax, and the forehead is marked with two deep furrows which cross one another and form an X. The prothorax is broader than long and the elytra are produced into a deflexed point at the apex. The posterior femora are only moderately thickened; the spur at the apex of the posterior tibiæ is wanting or obsolete. The anterior coxal cavities are open behind. The claws are simple and thin.

These insects are found in moss in damp places.

Range. Europe; Ceylon?

Owing to the existing doubt as to whether Motschulsky's species, included below, really belongs to the genus *Mniophila*, this genus is not incorporated in the key on pp. 283–286. See the further remarks below, under *M. ruficolle*.

351. **Mniophila ruficolle**, *Motschulsky*.

Mniophila ruficolle, Motsch., Bull. Soc. Nat. Mosc. xxxix, 1866, part 1, no. 2, p. 422.

I have not seen this insect. The following is a translation of the original description in Latin:—

With the form of *Illnioph. muscorum*, but larger and slightly more oblong. Oblong-ovate, strongly convex, shining, with the head, base of the antennæ, thorax, scutellum and legs, reddish-testaceous; elytra punctate, green; apical part of the antennæ and the underside of the body black.

Length, 1 line; *breadth*, ½ line [approximately 2 mm. and 1 mm. respectively].

CEYLON: Nuwara Eliya.

Location of *type* unknown.

The generic decription is taken from *M. muscorum*, Koch, which occurs in Great Britain, and specimens of which I have examined in the British Museum collection. It cannot be stated definitely whether the Ceylonese insect really belongs to this genus. The above enumeration of the generic characters of *Mniophila* will, however, be useful, should there be found in Ceylon an insect which conforms to the coloration of *M. ruficolle*. There are only three species recorded under this genus, two from Europe and one (*M. ruficolle*) from Ceylon. It must be remembered that Motschulsky's Ceylonese insect occurred at a great elevation.

Genus **ARGOPUS**, *Fischer*.

Argopus, Fischer, Ent. Russ. ii, 1824, p. 182, pl. 47, figs. 3, 4; Chapuis, Gen. Col. xi, 1875, p. 133.

GENOTYPE, *Argopus bicolor*, Fischer (Elisabethgrad, S.W. Russia).

The chief character on which the erection of this genus was built is the weak leaping power of the insect, to which Fischer called attention by naming it *Argopus*. The type-species, which he called *bicolor* and which I have not seen, was from S.W. Russia. But there are in the British Museum many other species from various places; these I have examined, and I have accordingly drawn up the following short generic diagnosis:— Body generally ovate and rather strongly convex; the prevailing colour is brown in its various shades, but sometimes certain parts are black. *Head* impunctate, interantennal elevations not strongly raised; eyes large. Antennæ hardly reaching the middle of the body; first segment long and club-shaped, second

small, third longer than second but very slightly (or in some cases distinctly) shorter than fourth; apical segments generally shorter and thinner; but in the different species there is a certain amount of variation from this type of antenna. *Prothorax* convex, broader than long; anterior lateral angles generally more or less thickened, the thickening being of various forms; surface generally very finely and more or less sparsely punctate. *Scutellum* small, oval, impunctate. *Elytra* convex, almost as broad at base as prothorax, always confusedly and finely punctate; sometimes the punctures are of two different kinds, some being very fine while others are coarser. *Underside*: anterior coxal cavities open behind; posterior femora thickened; posterior tibiæ channelled to a certain distance on the outer side and not armed with a spine at the apex; claws appendiculate.

Range. Europe, Siberia, Japan, Malaysia, Burma.

According to Chapuis the insects belonging to this genus have the anterior coxal cavities open behind. I have examined several species referred to *Argopus* in the British Museum and I find that they have the anterior coxal cavities closed. Not having seen the type of *Argopus bicolor*, Fischer, I cannot express an opinion as to the coxal cavities *; Fischer himself is silent about it. In describing *Argopus indicus*, Jacoby does not refer to this part of the anatomy at all. On account of the absence of accurate information on this point I have treated this genus separately, without incorporating it in the key on pp. 283–286.

352. **Argopus indicus**, *Jacoby*.

Argopus indicus, Jac., Ann. Mus. Civ. Genova, xxvii, 1889, p. 194.

Body ovate, convex. Colour shining dark brown; the six apical segments of the antennæ, and the apices of the mandibles, black.

Head not longer than broad, impunctate; frontal elevations broad and not strongly raised; carina acute, convex; clypeus simple. Antennæ very closely approximated; third segment a little longer than second, fifth longer than any of the preceding or following segments. *Prothorax* much broader than long, sides rounded, angles not produced, the anterior pair only slightly thickened, posterior margin distinctly sinuate at each side, broadly rounded and produced at the middle; surface very closely, finely and rather evenly punctate. *Elytra* more strongly and rather

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* Since the above was written, the courtesy of Dr. Uvarov has enabled me to see some specimens from Poltava, which have recently been sent to the British Museum and which have been determined by D. Ogloblin as *Argopus bicolor*. In these examples the anterior coxal cavities are open. It may be remarked that Poltava is very near Elisabethgrad, whence Fischer originally described the species.

regularly punctate; interstices also with some small punctures, which extend to the lateral margins, where the larger punctures are absent. *Underside*: all the femora, and more especially the posterior pair, incrassate.

Length, 5 mm.

BURMA: Teinzo (*L. Fea*).

Type in the Genoa Museum. I have not seen it, but have seen (in the British Museum) examples from Singapore of *A. angulicollis*, Clark, to which *A. indicus* is allied, but from which it is differentiated by the shape of the prothorax.

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All names printed in capital letters indicate families or subfamilies.
All names printed in italics are synonyms.
Generic names begin with a capital letter.
When more than one reference is given, the page on which the description occurs is indicated by thickened numerals.
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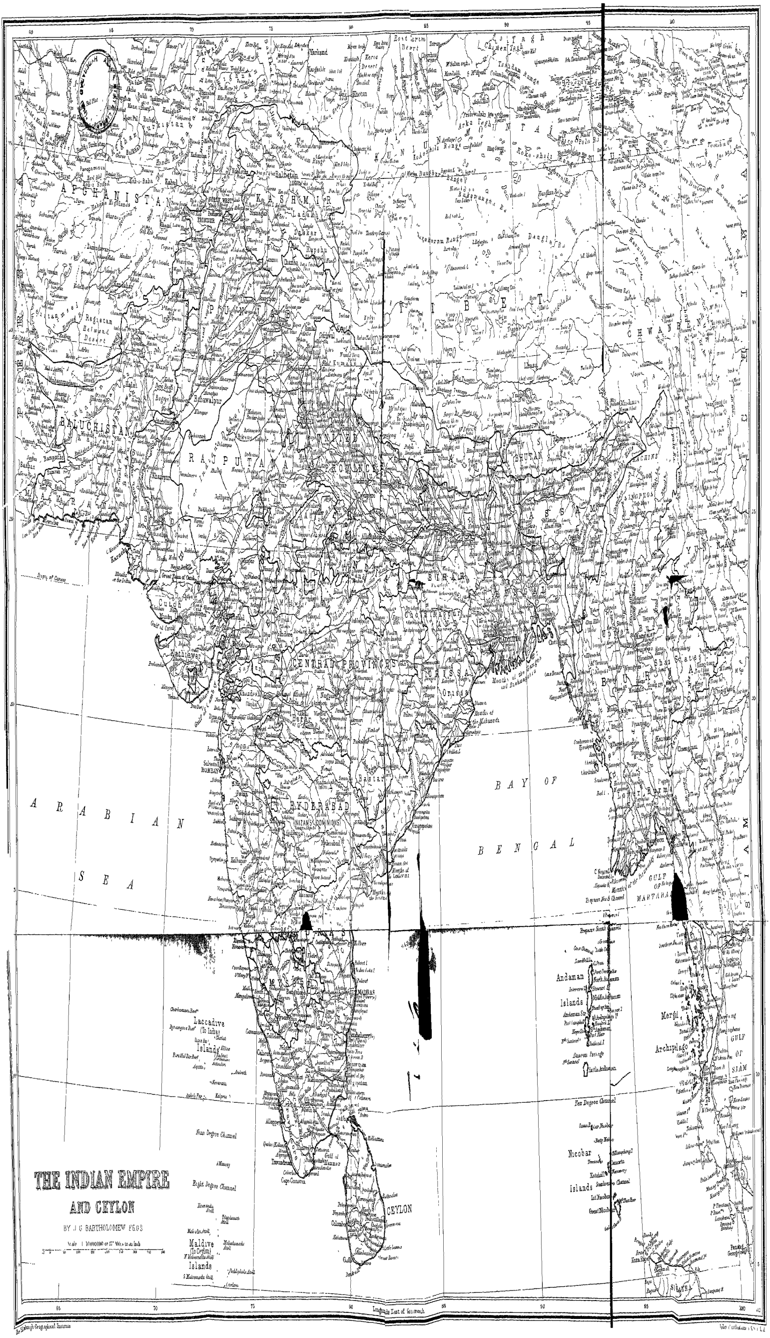
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